

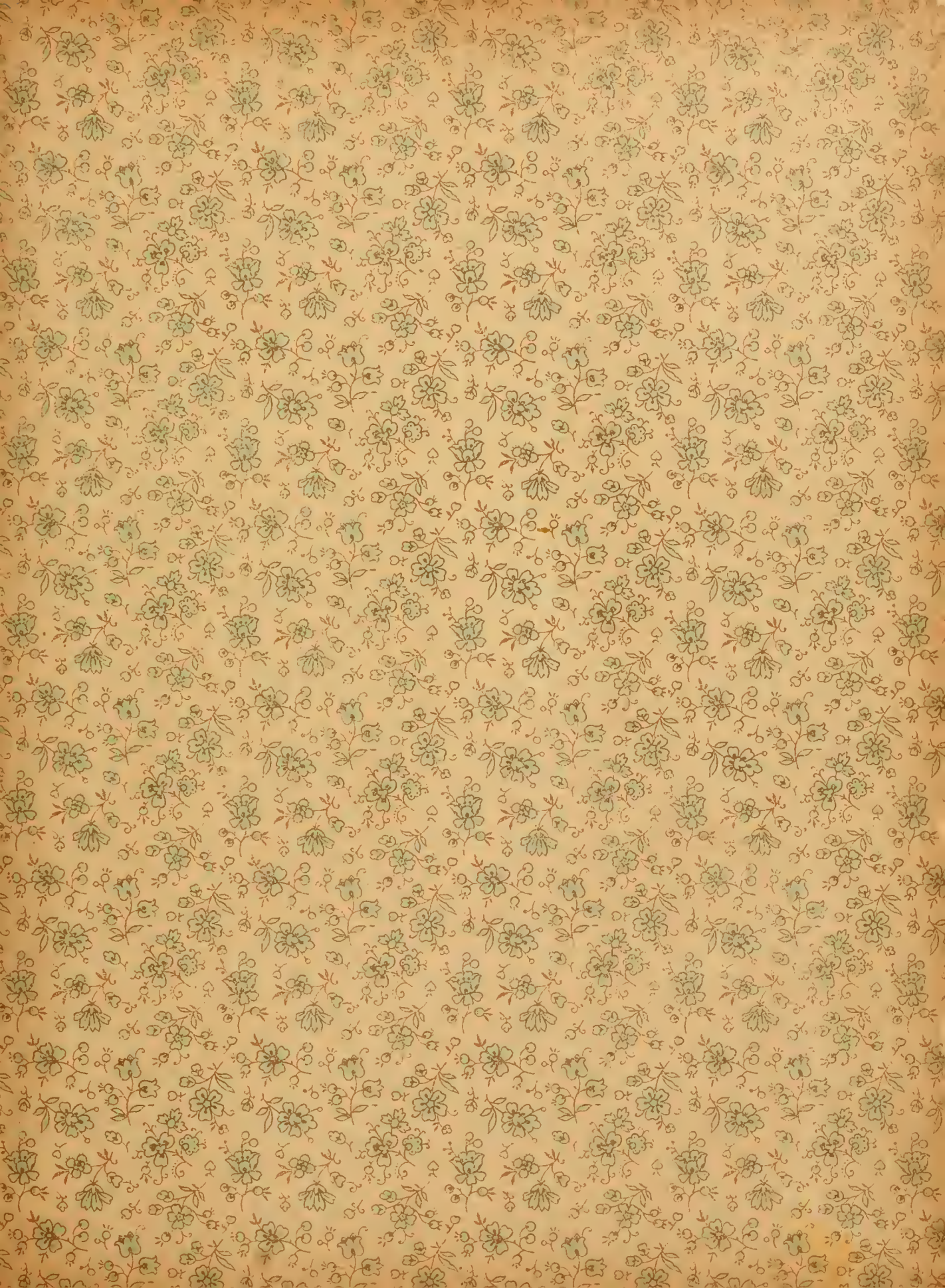
THE COLOR PRINTER



BY J. F. EARHART.

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John F. Earhart

THE
COLOR PRINTER



A TREATISE ON THE USE OF COLORS IN
TYPOGRAPHIC PRINTING

BY
JOHN F. EARHART



EARHART & RICHARDSON
CINCINNATI, OHIO
1892

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TO THE PRINTERS OF ALL
COUNTRIES WHO HAVE
CONTRIBUTED IN ANY
DEGREE TOWARD THE ELEVA-
TION OF + + . + . . . +
THE NOBLE ART OF PRINTING
+ + + + THIS WORK + - + +
IS RESPECTFULLY DEDICATED
+ + + + BY

John F. Earhart



PREFACE.



BELIEVING that a work of this character has long been needed, the author offers this book as a practical guide to all printers who desire to obtain the most artistic results in ornamental Color Printing, by the least amount of labor and expense. It has been the aim of the author to produce a work showing, in a measure, what can be accomplished with common colors, by mixture, by printing over one another, by printing over bronzes, and by harmonious combinations.

It is sincerely hoped that this book will answer the purpose for which it is intended, and that printers everywhere will receive it in a kindly spirit similar to that which prompted its production.

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Definitions of Terms.



PRIMARY COLORS—Red, Yellow, and Blue are called the *primary* colors, because they are the first or original colors from which all others can be made.

SECONDARY COLORS—Orange, Green, and Violet are called the *secondary* colors, because they are of the second formation, each color being produced by a mixture of two of the primary colors. The Orange, from red and yellow; the Green, from yellow and blue; and the Violet, from blue and red.

TERTIARY COLORS—Russet, Olive, and Citron are called the *tertiary* colors, because they are of the third formation, each color being produced by a mixture of two of the secondary colors. The Russet, from orange and violet; the Olive from violet and green; and the Citron, from green and orange.

A FULL COLOR is a color in its purest state—one which has not been changed by the addition of white or black. The primaries, secondaries, and their various hues are *full* colors. See Plate 32.

A HUE is a primary or secondary color slightly changed by the addition of a neighboring color. For example, a *green-blue* is a hue of blue; a *blue-green* is a hue of green. See Plate 32.

A TINT is a very light or pale color, produced by adding a small quantity of color to a greater quantity of white. For example see Plates 19, 20, and 21.

A SHADE is a dark or broken color, produced by the mixture of a full color with gray or black. For example see Figs. 31 to 36, and many others throughout this work.

A HALF-TONE is a color reduced to about one-half its original strength by the addition of white. For example see Plates 17 and 18.

The LIGHT TONES of a color are the various degrees of color produced by the mixture of a full color with white. For example, Fig. 133 on Plate 17, and Fig. 149 on Plate 19, are two of the *light tones of red*.

THE DARK TONES of a color are the various degrees of color produced by the mixture of a full color with black. For example, Figs. 35 and 36 on Plate 4, are two of the *dark tones of red*.

By COLOR SCALE is meant all of the different tones of a color, ranging from the darkest shade to the full color, and from the full color to the lightest tint.

A WARM COLOR is any color in which red or yellow predominates.

A COLD COLOR is any color in which blue predominates.

COMPLEMENTARY COLOR.—Any color is complementary to another, when by a mixture of the two, prismatically, *white light* is produced.

SPECTRAL COLOR.—A spectral color is the tint which is seen upon a white surface, after looking upon a colored object for some minutes. The tint will in every case be exactly complementary to the color looked upon.

PRISMATIC COLORS.—The different colors produced by the refraction of the sunlight as it passes through a triangular piece of clear glass called a prism.

THE RETINA is a delicate membrane inside of the eye, upon which is projected by the crystalline lens, the image of any object coming before it. In operation the eye is similar to that of the photographic camera. It is said that the retina is composed of three sets of fine nerve-fibres intermixed; one set being sensitive to the action of red, another to yellow, and the other to blue. These nerve-fibres unite in the back part of the eye, forming what is known as the optic nerve, which connects the eye with the brain.





The Color Printer.



FOR the purpose of avoiding confusion, and that the reader may more clearly understand the text, this work is based upon the old theory that there are three primary colors—*red*, *yellow*, and *blue*. Some writers contend that red, green, and blue, are the primary color sensations, and others that red, green, and violet are the primaries. We think that the experiments which are explained on pages 22 to 32, inclusive, tend to prove that the *red*, *yellow*, and *blue* theory is correct. It is certainly the most practical when applied to pigments, and is, therefore, the most suitable for this work.

To simplify the book as much as possible, we have selected as a foundation for it the twelve colors shown on Plate 1, including *white*. These colors were adopted because the writer believes that a greater variety of mixed colors can be produced from this selection than from any other containing the same number; besides, these colors are not only the most useful, but also, the most common, and best known among printers.

We could have added several other useful colors, such as umber, sienna, etc., but concluded that it was best to not make the work too complicated, and so have adhered to the original idea. Very nearly the same result could have been accomplished by leaving

out the orange, lemon yellow, vermilion, and gray; but in that case, we would have been obliged to resort to a great many *three-color* mixtures. As it is, we obtain nearly all of the colors desired by simple *two-color* mixtures. This fact makes it much easier for the printer to produce any of the mixed colors shown in this book.

Plate 1.—By reference to this Plate, the reader will notice that the colors are numbered from 1 to 12, and on all of the different plates upon which they appear, are referred to by number, except in a few instances where the name serves the purpose better. In producing the half-tone colors and tints we necessarily used *white*, which is not shown on Plate 1, but is always referred to by name.

The first three colors are the primaries—red, yellow, and blue. Then follows the three secondaries—orange, green, and purple. Then follows deep blue, rose lake, lemon yellow, vermilion, gray, and black. Purple was selected instead of violet, as one of the secondary colors, because it lies about half way between the red and blue, while the violet is a little too near the blue. One of the main objects in making this selection of colors, was to have them as far removed from one another as possible, so that we could get a greater variety of mixed colors.

After having decided to adopt the twelve colors just named, as a key, or foundation for the work, we had a small quantity of each color made, and then tested them thoroughly. Those that were not satisfactory were re-made until they were just as wanted. Then we had a large quantity of each color made, in fact, enough to print the entire work. A few of these colors were returned for slight changes, which were easily made.

After the colors were all satisfactory, we proceeded to find how many different colors we could get by two-color mixtures. We first mixed Nos. 1 and 2, that is, red and yellow, in different proportions; then 1 and 3, 1 and 4, 1 and 5, 1 and 6, etc., until we had run to the



RED



YELLOW



BLUE



ORANGE



GREEN



PURPLE



DEEP BLUE



ROSE LAKE



LEMON YELLOW



VERMILION



GRAY



BLACK

end of the twelve. Then we mixed Nos. 2 and 3, 2 and 4, 2 and 5, etc., to the end of the list. We did the same with 3 and 4, 3 and 5, 3 and 6, etc., until all of the twelve colors had been tried. The result was about one thousand different colors. Then we proceeded to select the colors which we desired to show in this book.

The different colors produced by the mixture of two colors would in some instances exceed one dozen. In such cases we would select three or four which were as far removed from one another and the two colors used to produce them, as possible. For instance, Figures 33, 34, 35, and 36, on Plate 4, were made of red and black; 33 being the nearest to black, and 36 the nearest to red. In some instances we selected only one color from the different mixtures of two colors; for example, Fig. 28, Plate 3, which is composed of equal parts of red and rose lake.

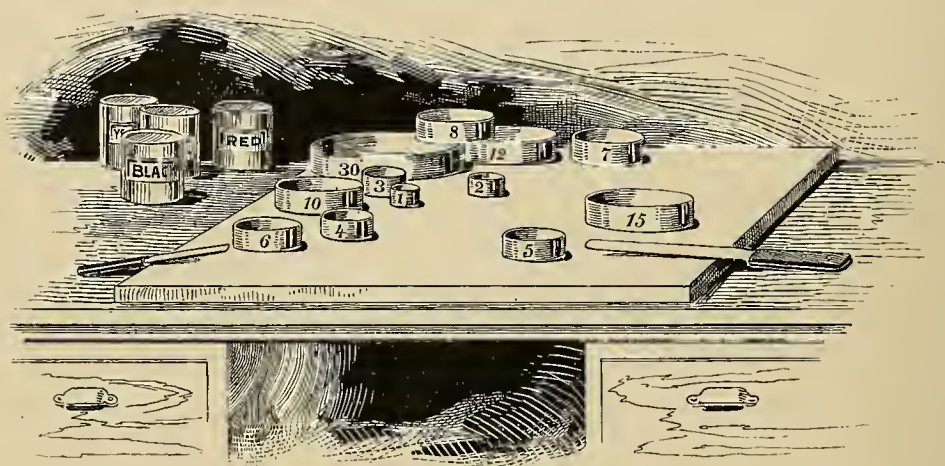
We will now proceed to show a variety of colors produced by two-color mixtures, and explain the manner in which the proper proportions of each color were obtained. The reader will please note that in speaking of a combination of two or more colors to produce another color, we always refer to it as a *mixture*—a *two-color mixture*, *three-color mixture*, etc. When using the word combination, as *two-color combination*, we mean an impression of two different colors in one figure or design.

Plates 2 to 15, inclusive.—These plates show 112 colors produced by two-color mixtures, from the colors on Plate 1.



In printing these colors the cut represented above was used. It was engraved specially to show the effect of each color in solids, half-tone lines, quarter-tone lines, and tint lines.

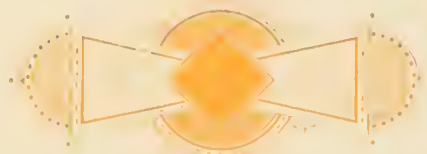
As this book is intended specially for printers who use comparatively small quantities of ink, we decided to obtain the different proportions by measure instead of by weight. In accordance with this idea, we obtained a lot of brass circles of different sizes, and by careful tests and filing them down until they were right, finally got a dozen which bore the proper proportions to one another, as represented by the numbers in the following cut:



Then with the addition of a fine marble slab, a half dozen small ink knives, and about two hundred quarter-pound cans, we were ready to commence mixing the colors. Fig. 13 on Plate 2 was the first color made. The reader will please notice that the proportions are as 1 to 3 in this color. We first laid circles Nos. 5 and 15 on the slab; then took color No. 1 and filled circle No. 5 even with the top; then color No. 2 and filled circle No. 15 even with the top. Then we took a small ink knife in one hand and lifting circle No. 5 with the other, very quickly got all its contents on to the slab ready for mixing, and repeated the operation with circle No. 15. This would have been extremely difficult if the measures had bottoms to them, but in this case the marble slab was the bottom, and when



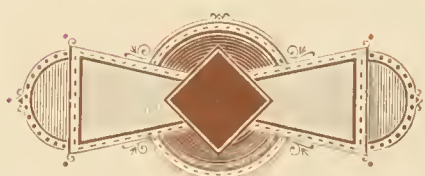
13
1 part of 1
3 parts of 2



14
1 part of 1
15 parts of 2



15
1 part of 1
3 parts of 3



16
1 part of 1
1 part of 3



17
5 parts of 1
1 part of 3



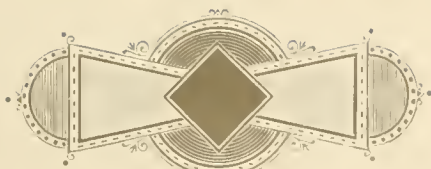
18
15 parts of 1
1 part of 3



19
1 part of 1
1 part of 4

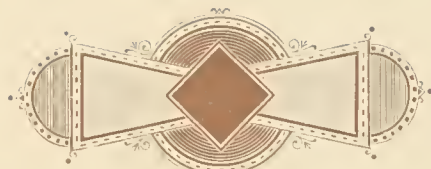


20
1 part of 1
5 parts of 4



21

1 part of 1
6 parts of 5



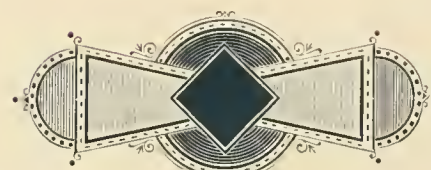
22

1 part of 1
3 parts of 5



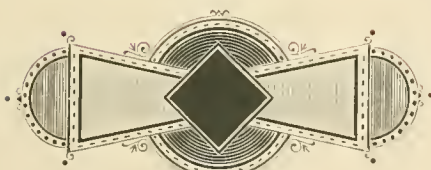
23

1 part of 1
1 part of 5



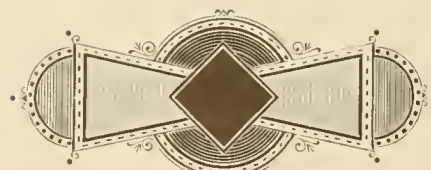
24

1 part of 1
1 part of 7



25

3 parts of 1
1 part of 7



26

6 parts of 1
1 part of 7



27

15 parts of 1
1 part of 7



28

1 part of 1
1 part of 8





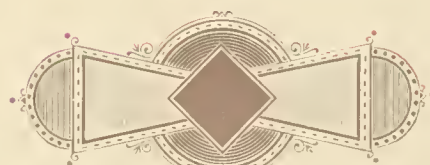
29
1 part of 1
1 part of 9



30
1 part of 1
1 part of 10



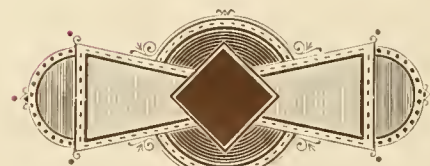
31
1 part of 1
5 parts of 11



32
1 part of 1
15 parts of 11



33
1 part of 1
1 part of 12



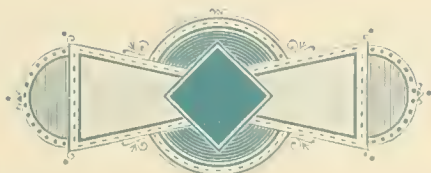
34
3 parts of 1
1 part of 12



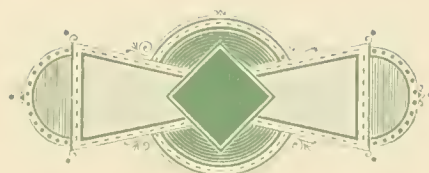
35
7 parts of 1
1 part of 12



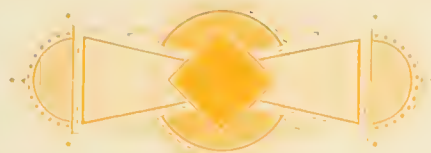
36
15 parts of 1
1 part of 12



37
1 part of 2
7 parts of 3



38
1 part of 2
2 parts of 3



39
1 part of 2
1 part of 4



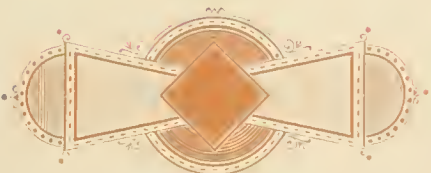
40
1 part of 2
1 part of 5



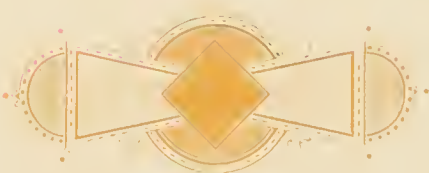
41
15 parts of 2
1 part of 5



42
1 part of 2
3 parts of 6



43
1 part of 2
1 part of 6



44
3 parts of 2
1 part of 6



45
1 part of 2
1 part of 7



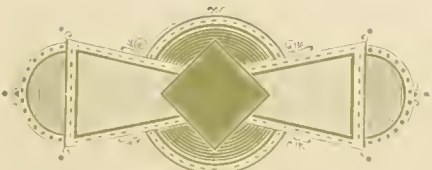
46
30 parts of 2
1 part of 7



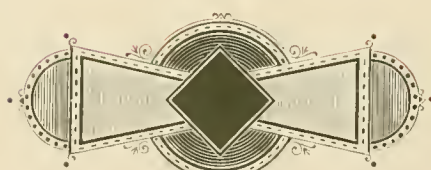
47
100 parts of 2
1 part of 7



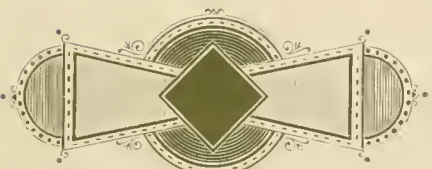
48
1 part of 2
1 part of 10



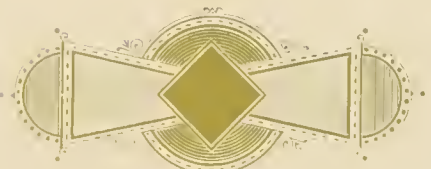
49
1 part of 2
7 parts of 11



50
1 part of 2
1 part of 12



51
3 parts of 2
1 part of 12



52
15 parts of 2
1 part of 12



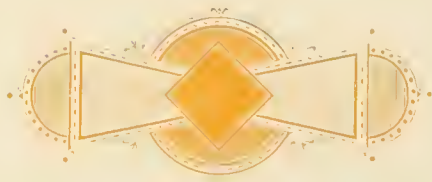
53
3 parts of 3
1 part of 4



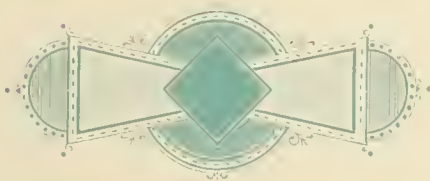
54
1 part of 3
1 part of 4



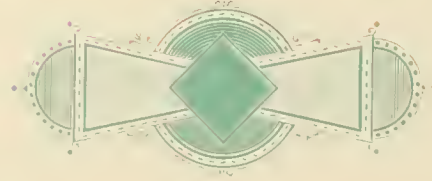
55
1 part of 3
3 parts of 4



56
1 part of 3
20 parts of 4



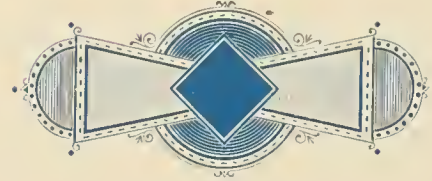
57
1 part of 3
1 part of 5



58
1 part of 3
3 parts of 5



59
1 part of 3
2 parts of 6



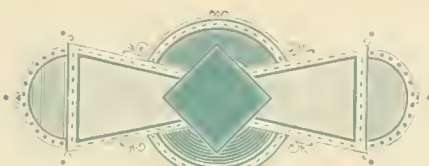
60
1 part of 3
1 part of 7



61
1 part of 3
1 part of 8



62
1 part of 3
15 parts of 8



63
3 parts of 3
1 part of 9



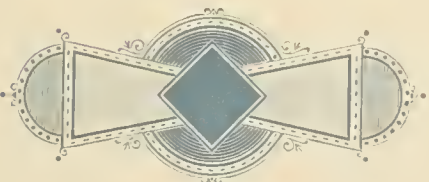
64
3 parts of 3
1 part of 10



65
1 part of 3
1 part of 10



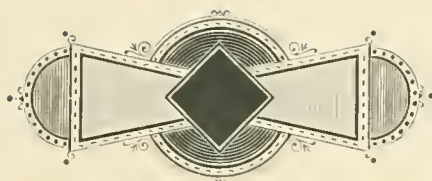
66
1 part of 3
5 parts of 10



67
1 part of 3
1 part of 11

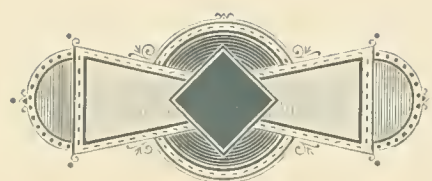


68
1 part of 3
3 parts of 11



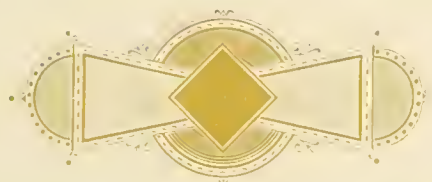
69

3 parts of 3
1 part of 12



70

10 parts of 3
1 part of 12



71

2 parts of 4
1 part of 5



72

1 part of 4
1 part of 6



73

3 parts of 4
1 part of 6



74

1 part of 4
1 part of 7



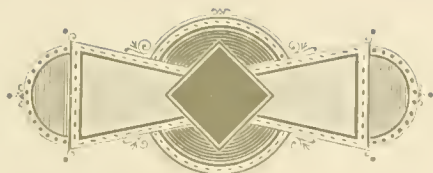
75

5 parts of 4
1 part of 7

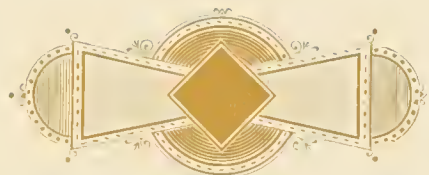


76

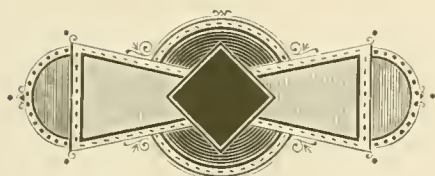
1 part of 4
1 part of 8



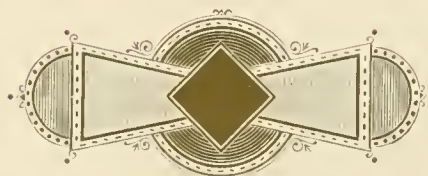
77
1 part of 4
15 parts of 11



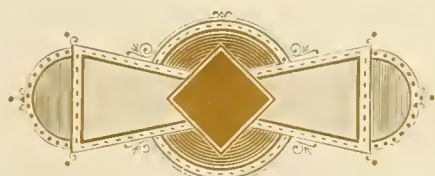
78
1 part of 4
1 part of 11



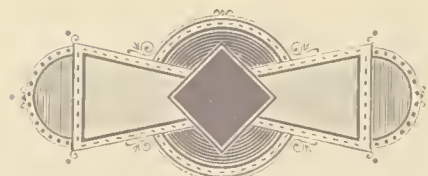
79
1 part of 4
1 part of 12



80
5 parts of 4
1 part of 12



81
20 parts of 4
1 part of 12



82
2 parts of 5
1 part of 6



83
3 parts of 5
1 part of 7



84
1 part of 5
1 part of 8



85
1 part of 5
3 parts of 9



86
1 part of 5
15 parts of 9



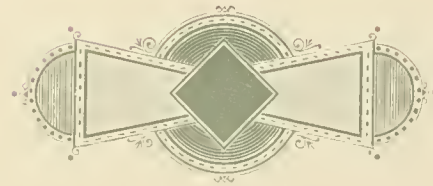
87
3 parts of 5
1 part of 10



88
1 part of 5
1 part of 10



89
1 part of 5
3 parts of 10



90
1 part of 5
5 parts of 11



91
1 part of 5
1 part of 12



92
5 parts of 5
1 part of 12



93
3 parts of 6
1 part of 7



94
1 part of 6
1 part of 8



95
1 part of 6
5 parts of 8



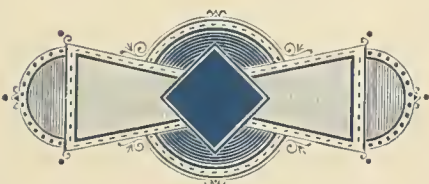
96
1 part of 6
7 parts of 11



97
2 parts of 6
1 part of 12



98
6 parts of 6
1 part of 12



99
1 part of 7
1 part of 8



100
1 part of 7
7 parts of 8



101
1 part of 7
1 part of 9



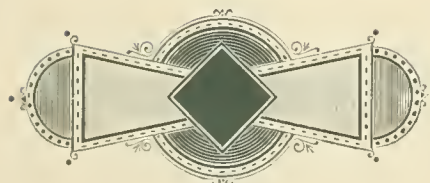
102
1 part of 7
5 parts of 9



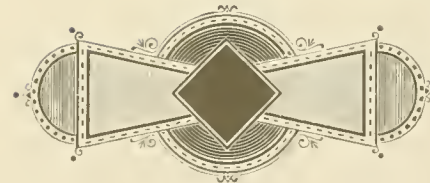
103
1 part of 7
50 parts of 9



104
1 part of 7
200 parts of 9



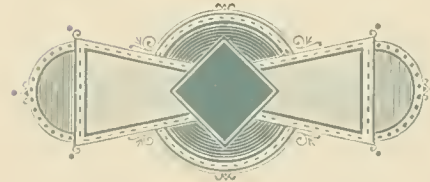
105
1 part of 7
3 parts of 10



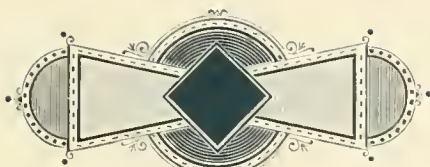
106
1 part of 7
7 parts of 10



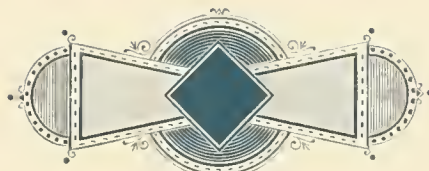
107
1 part of 7
30 parts of 10



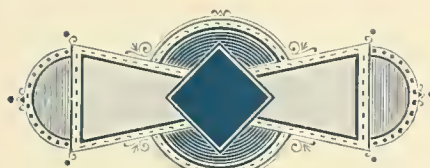
108
1 part of 7
15 parts of 11



109
2 parts of 7
1 part of 12



110
5 parts of 7
1 part of 12



111
10 parts of 7
1 part of 12



112
1 part of 8
3 parts of 11



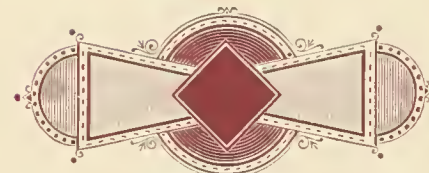
113
1 part of 8
15 parts of 11



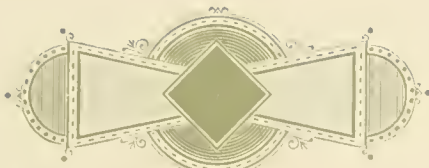
114
1 part of 8
1 part of 12



115
3 parts of 8
1 part of 12



116
10 parts of 8
1 part of 12



117
1 part of 9
3 parts of 11



118
2 parts of 9
1 part of 12



119
10 parts of 9
1 part of 12



120
1 part of 10
1 part of 11



121
1 part of 10
10 parts of 11



122
1 part of 10
1 part of 12



123
5 parts of 10
1 part of 12

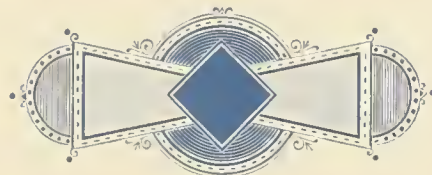


124
15 parts of 10
1 part of 12



125

3 parts of 3
1 part of 6
1 part of 7



126

1 part of 3
3 parts of 6
1 part of 7



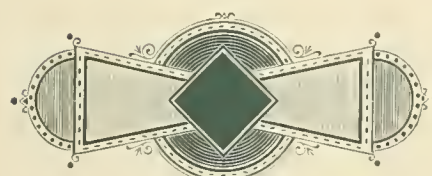
127

1 part of 3
5 parts of 10
5 parts of 12



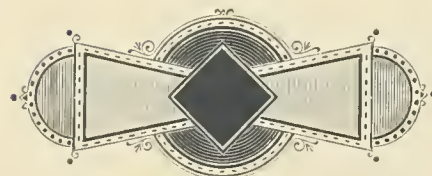
128

3 parts of 5
1 part of 7
4 parts of 12



129

3 parts of 5
1 part of 7
1 part of 12



130

4 parts of 6
1 part of 7
1 part of 12



131

1 part of 6
5 parts of 8
5 parts of 12



132

2 parts of 7
2 parts of 8
1 part of 12

the circles were raised a great part of the ink stuck to the slab. The two inks were then very thoroughly manipulated with a heavy knife until they were perfectly united, and the mixture was then put into a can which was numbered, and the color registered in a sample book made for that purpose. The greatest precautions were taken to avoid mistakes, which, of course, would seriously mislead the reader.

In mixing two or more colors it is of the utmost importance that everything should be *clean*. The stone or whatever is used to mix the inks upon, should be covered with boiled linseed oil, and then thoroughly cleaned with manilla tissue paper. The brass circles and the ink knives should be cleaned in the same manner. Then, when it comes to the mixing, the operator should not stop after he has rubbed the inks together for only a few minutes, but should keep at it, working lively until the inks are *thoroughly* united. Then, if the mixed color does not work well and lay smooth on the paper, it will not be on account of neglecting one of the most important essentials necessary to obtain that result.

All of the colors represented on Plate 1 were made as full bodied as they could be, to work well and print smoothly on the plate paper used. All of the proportions given for producing different colors by mixture, are based upon the use of *full bodied* or *medium thick* inks, and not upon very thin inks.

The different plates in this work are numbered consecutively from 1 to 90. The different figures shown upon the plates are numbered consecutively from 1 to 403. Every mixed color used in this book was made by the writer from the twelve colors shown on Plate 1. Of course, the special colors on Plate 86, and the bronzes and gold ink, are not included.

Plate 16.—This plate shows eight colors produced by three-color mixtures from the colors on Plate 1. The object of this plate is to show some deep colors, which could not be obtained by two-color mixtures.

Below we give a list of some of the colors shown on the preceding plates:

The Reds are represented by Figs. 13, 19, 20, 28, 29, 30, 76, and 95. Fig. 19 is a good orange red, and Fig. 30 a deep vermilion. Fig. 95 is a purple-red.

Figs. 37, 60, 63, 93, 125, and 126 represent Blues. Fig. 37 is a greenish blue; Fig. 60 is an excellent blue; Fig. 63 is a green-blue; Figs. 93, 125, and 126 are violet blues.

Orange is represented by Figs. 14, 39, 48, and 56. The best orange color is made by a mixture of the primaries red and yellow, or any red and yellow lying between them. A mixture of rose-lake and lemon-yellow will produce a dull orange color, due to the fact that rose-lake leans a little to purple, and lemon-yellow to green.

Green is represented by Figs. 38, 40, 45, 46, 47, 57, 58, 74, 75, 83, 85, 86, 101, 102, 103, and 104. Fig. 45 is a fine deep green, and Fig. 46 is a light yellow-green. Figs. 57 and 58 are blue-greens. Fig. 74 is a deep olive, and Fig. 75 is a medium olive. Fig. 83 is a fine color which is about half way between blue and green, and which can properly be called a sea-green. Fig. 85 is a strong light green. The best green is made by a mixture of the primaries yellow and blue, or any yellow and blue lying between them. A mixture of orange-yellow and violet-blue will produce an olive-green.

Purple is represented by Figs. 62 and 94. These two colors are reddish purples.

Violet is shown by Figs. 59 and 61, the former being the best of the two. It is very hard to produce a good purple or violet by mixture of red and blue inks. To obtain the best result, a carmine or rose-lake must be mixed with a pure ultramarine blue.

Brown is represented by Figs. 23, 27, 35, 36, 42, 43, 66, 72, 73, 88, 89, 107, 120, and 124. Figs. 35 and 36 are fine deep browns; Fig. 73 is a leather brown, and Fig. 81 is a sepia brown. Out of this list of browns the printer can surely find what is desired.

The next is a list of fine Grays, represented by Figs. 31, 32, 49, 67, 68, 77, 90, 96, 108, 113, 117, and 121. Figs. 31 and 32 are red-grays; Fig. 49 is a yellow-gray; Figs. 67 and 68 are blue-grays; Fig. 77 is an orange-gray; Fig. 90 is a green-gray; Fig. 96 is a purple-gray; Fig. 108 is a blue-gray; Fig. 113 is a purplish gray made of rose lake and gray; Fig. 117 is a greenish gray made of lemon yellow and gray. Fig. 121 is a soft gray made of vermilion and gray. Without some of these grays it would be simply impossible to obtain the most pleasing and artistic results in color printing. These colors not only serve to bring out and strengthen the positive colors used in combination with them, but also to neutralize the bad influence of some colors upon others. Colored grays are generally most effective in ornamental printing when used as backgrounds for panels, bands, etc.

Blue-black is represented by Figs. 24, 69, 70, 109, 110, and 132. The best of these are Figs. 109 and 110, which are made of deep blue (Fig. 7) and black (Fig. 12).

Photo-black is shown by Figs. 33, 114, 122, 127, and 131. These colors all lean a little to either red, yellow, or purple.

Green-black is represented by Figs. 50, 91, 118, 128, and 129.

Fig. 79 is a good sepia-black. Figs. 97 and 130 are violet-blacks. Figs. 16 and 116 are maroons, the latter being the best of the two. Fig. 44 is citron. Figs. 26, 34, and 115 are photo-browns; the latter is shown in Fig. 343, Plate 60. Fig. 123 is sepia-brown. Figs. 87 and 119 are sage-greens. Figs. 17 and 18 are maroon-reds.

Plate 17.—This plate shows eight half-tone colors produced by two-color mixtures of the colors on Plate 1, with white. The white ink used in this work, with only one exception, is an opaque ink known as zinc white. The only case in which it was not used is the specimen of map work shown on Plate 90; the three tints used in this specimen were made by mixing the colors with *magnesia*, and were printed over the black. *Magnesia* makes a transparent tint, which for purposes of this kind is most useful.

Plate 18.—This plate shows eight half-tone colors produced by two-color mixtures of different mixed colors with white. Some of the best effects in the combination of colors can be obtained with half-tone colors, as illustrated on Plates 33 to 37, inclusive. Figs. 133, 140, and 145 are half-tone reds. Figs. 135 and 139 are half-tone blues. Fig. 138 is a half-tone purple. Fig. 143 is a half-tone violet. Fig. 142 is a half-tone blue-green, and Fig. 148 is a half-tone green-blue. Fig. 144 is a half-tone olive.

Plates 19 to 21, inclusive.—These plates show a variety of beautiful tints. Plate 19 shows ten tints produced by mixtures of the colors on Plate 1 with white. Plates 20 and 21 show twenty different tints produced by mixtures of different mixed colors with white. All of these tints were printed with the cut shown below.



We tried to produce as great a variety of useful tints as possible, and think that the reader will surely be able to get what is desired out of this selection. The value of these tints is illustrated in many of the combinations of colors shown in this work.

Plates 22 to 28, inclusive.—These plates show a variety of colors, hues, etc., produced by the lapping of different colors of

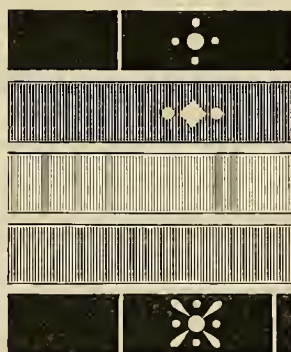


FIG. A.

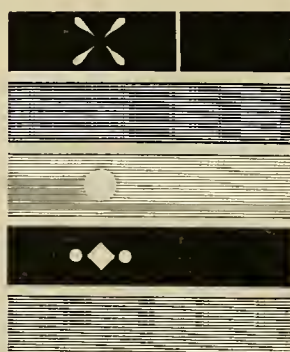


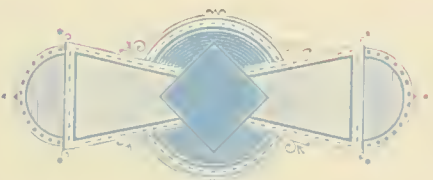
FIG. B.



133
1 part of 1
2 parts of White



134
1 part of 2
3 parts of White



135
1 part of 3
2 parts of White



136
1 part of 4
3 parts of White



137
1 part of 5
2 parts of White



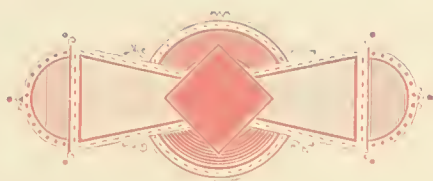
138
1 part of 6
2 parts of White



139
1 part of 7
5 parts of White



140
1 part of 8
2 parts of White



141
1 part of 17
3 parts of White



142
1 part of 45
3 parts of White



143
1 part of 59
2 parts of White



144
1 part of 75
3 parts of White



145
1 part of 76
2 parts of White



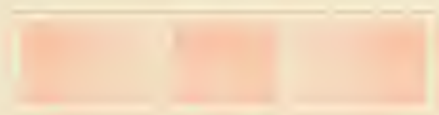
146
1 part of 89
2 parts of White



147
1 part of 94
2 parts of White



148
1 part of 101
4 parts of White



149
1 part of 1
40 parts of White



150
1 part of 2
30 parts of White



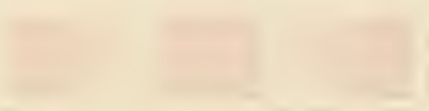
151
1 part of 3
30 parts of White



152
1 part of 4
30 parts of White



153
1 part of 5
20 parts of White



154
1 part of 6
40 parts of White



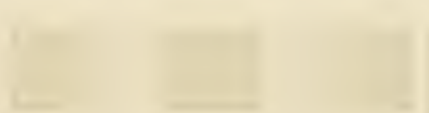
155
1 part of 7
100 parts of White



156
1 part of 8
40 parts of White



157
1 part of 10
30 parts of White



158
1 part of 12
150 parts of White



159
1 part of 14
15 parts of White



160
1 part of 24
150 parts of White



161
1 part of 38
30 parts of White



162
1 part of 47
15 parts of White



163
1 part of 48
30 parts of White



164
1 part of 51
100 parts of White



165
1 part of 55
30 parts of White



166
1 part of 59
60 parts of White



167
1 part of 65
40 parts of White



168
1 part of 66
40 parts of White



169
1 part of 71
15 parts of White



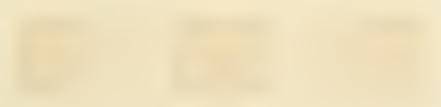
170
1 part of 75
40 parts of White



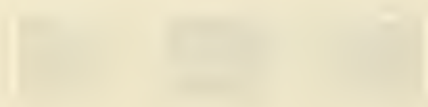
171
1 part of 83
60 parts of White



172
1 part of 85
15 parts of White



173
1 part of 88
30 parts of White



174
1 part of 93
80 parts of White



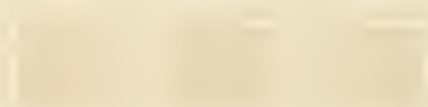
175
1 part of 105
60 parts of White



176
1 part of 110
200 parts of White



177
1 part of 118
80 parts of White



178
1 part of 122
150 parts of White



179
Red over Yellow



182
Red over Blue



180
Red over Green



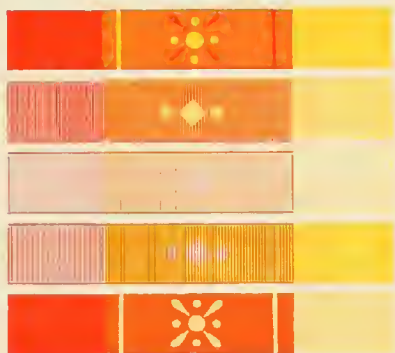
183
Red over Deep Blue



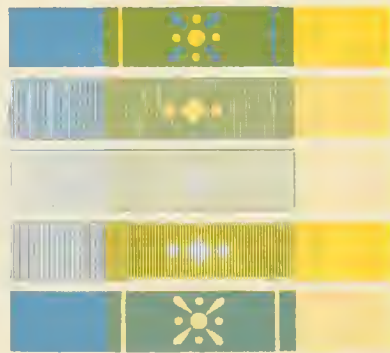
181
Red over Gray



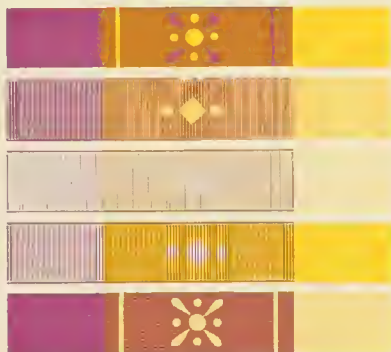
184
Red over Black



185
Yellow over Red



188
Yellow over Blue



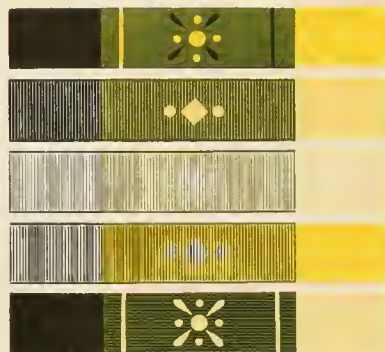
186
Yellow over Purple



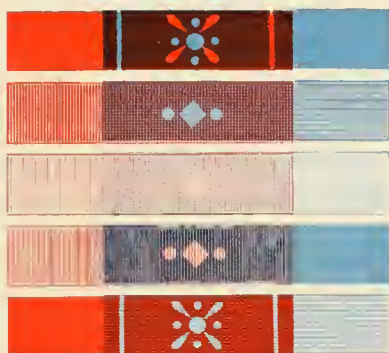
189
Yellow over Deep Blue



187
Yellow over Gray



190
Yellow over Black



191
Blue over Red



194
Blue over Yellow



192
Blue over Orange



195
Blue over Rose Lake



193
Blue over Gray



196
Blue over Black



197
Orange over Blue



200
Green over Red



198
Orange over Green



201
Green over Purple



199
Orange over Gray



202
Green over Gray



203
Purple over Yellow



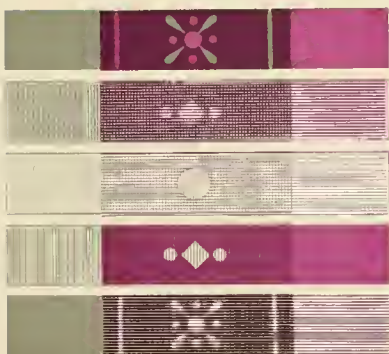
206
Deep Blue over Red



204
Purple over Green



207
Deep Blue over Yellow



205
Purple over Gray



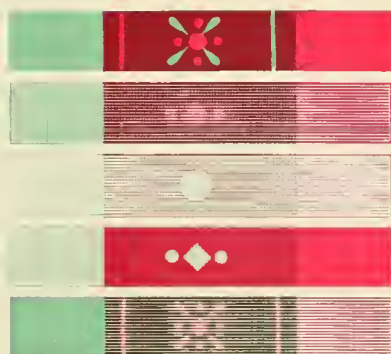
208
Deep Blue over Rose Lake



209
Rose Lake over Yellow



212
Rose Lake over Blue



210
Rose Lake over Green



213
Rose Lake over Deep Blue



211
Rose Lake over Gray



214
Rose Lake over Black



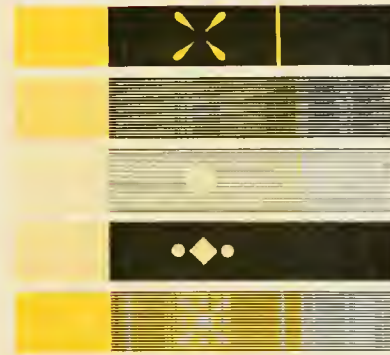
215
Gray over Red



218
Black over Red



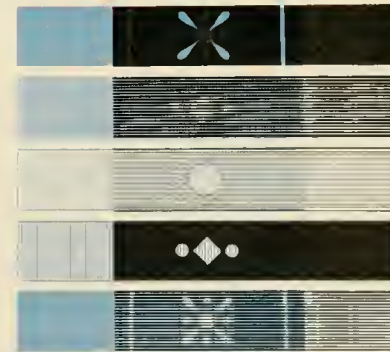
216
Gray over Yellow



219
Black over Yellow



217
Gray over Blue



220
Black over Blue



221
156 over 150



222
156 over 155



223
156 over 158



224
150 over 155



225
150 over 156



226
150 over 158



227
155 over 150



228
155 over 156



229
155 over 158



230
153 over 150



231
153 over 155



232
153 over 156



233
152 over 155



234
152 over 156



235
152 over 158



236
158 over 150



237
158 over 156



238
158 over 155



239



240



241



242



243

Plate 1 over one another in lines and solids. In printing these illustrations two different cuts were used. Fig. A was printed first, and then Fig. B was printed on top of Fig. A, but shifted half an inch to the right.

The reader will notice that the cuts are engraved to show the result of printing solids over solids; half-tone lines over half-tone lines; tint lines over tint lines; solids over quarter-tone lines, and quarter-tone lines over solids. These seven pages will certainly prove to be of special value to all printers who employ engravers or who do label work. For example, Fig. 200 clearly illustrates what a label printer can accomplish with two good colors.

Plates 29 and 30.—These two plates show a variety of tints produced by the lapping of different tints over one another in lines and solids. Two different cuts were used in printing these illustrations. Fig. C was printed first, and then Fig. D was printed on top of it, but shifted one-quarter of an inch to the right. These



FIG. C.



FIG. D.

cuts were engraved to show the result of printing solids over solids; half-tone lines over half-tone lines, and tint lines over tint lines. Good use of these effects can be made, not only in fine label work, but also in elegant card work, or ornamental printing of any description. For example we refer the reader to the specimen cards on Plates 49 and 67.



Complementary Colors.



PLATE 31.—This plate is intended to specially illustrate a number of very interesting experiments showing that certain colors are complementary, and also the influence of colors over one another. Before giving an explanation of the experiments referred to, it is probably best to call the reader's attention to the meaning of the word *complementary* as applied to colors. *When the mixture of any two colors produces white light they are said to be complementary.* This is true of prismatic colors, but it is impossible to obtain white by the mixture of complementary colors in printing inks or paints. There is quite a difference of opinion between the best authorities as to what colors are exactly complementary. After many careful experiments we have concluded that the following colors, as represented on Plate 32, are complementary:

- Red and Sea-green.
- Yellow and Violet.
- Blue and Orange.
- Green and Red-purple.
- Purple and Yellow-green.

It is generally believed that green is the complement of red, but this belief is mainly due to the fact that it was advocated by Chevreul, the celebrated French chemist. Maxwell and Von Bezold say that blue-green is the complement of red, while Church, Rood, and others, say green-blue is its complementary. The experiment explained on pages 23 to 26 will show that the complement of red is a color which lies about half way between green and blue, and which, for convenience, we will call *sea-green*, the name preferred by some writers. This color is frequently seen at night in its most brilliant state, in the show-windows of some drug stores, produced by a light shining through a glass globe filled with a solution of ammonia and sulphate of copper.

EXPERIMENTS WITH COLORS.

The complement of any color can be easily obtained by looking very intently at the color selected for about one minute, and then suddenly shifting the vision to a white surface, upon which will be seen a pure tint of the complement of the color just looked at. This being true, then it follows that when we place together two colors which are complementary and view them at the same time, there will be seen when the eyes are shifted to a white surface, a tint of each color transposed—that is, the complement of one color will be the actual tint of the other; for illustration the reader will turn to Fig. 239, Plate 31, which represents *red* and its complement *sea-green*. To obtain the best results in these experiments the instructions must be followed closely.

You will now cover Figs. 240, 241, 242, and 243 with a white sheet of paper, leaving Fig. 239 and the black dot on the right exposed. Then hold your eyes about twelve or fifteen inches above the page and look steadily (without winking, if you can) at the black dot in the center of Fig. 239 for a half minute; then instantly shift

your eyes to the black dot on the right, and look at that a few seconds; then shift back again to the dot on Fig. 239 and look at that a half minute; then again to the dot on the right for a few seconds, *and after repeating these movements three or four times, finally look steadily at the dot on the right, and you will see a beautiful tint of the complement of *red*, and also a tint of the complement of *sea-green*, just the size and shape of Fig. 239. The reader will observe that the red tint is below the sea-green tint, which is just the reverse of the position of the colors in Fig. 239. If the two tints produced by this experiment are similar to the *actual* tints of the colors which call them into view, then the colors shown in Fig. 239 are complementary. If this experiment be tried with Fig. 242, the reader will find that the complement of *green* is a *reddish purple*.

Now cover all of the figures except 239 and 241. Repeat the experiment just described, shifting the vision alternately between the black dot on Fig. 239 and the white dot on Fig. 241, finally allowing the eyes to rest on the white dot. In this case you will see deep *shades* of the complements of *red* and *sea-green* instead of *tints* as in the first experiment. Try this experiment with Fig. 242 and you will see deep shades of the complements of *green* and *reddish purple*.

We will now show the effect of looking at a color for several minutes, then suddenly looking upon its complement for a few seconds. The result will be that the color last looked at will appear almost as brilliant as a prismatic color. First cover all of the figures except 239 and 240. Then look very intently at the black dot on Fig. 239; after the colors have become somewhat dull to the eye, suddenly shift the vision to the dot on Fig. 240. The result is most pleasing, as the colors in the latter figure seem to be increased in

*The movements described are repeated for the purpose of building up, or making stronger the complementary tint which is called into view.

brilliancy tenfold. The reason for this apparent change in the colors, is that after looking upon a colored object for some minutes, that part of the retina of the eye upon which the color makes an impression becomes fatigued, and the complement of that color takes its place upon the retina. It is a fact that from the instant that we first look upon any color, its complement *immediately begins* to take its place upon the retina of the eye, and the longer we look upon a color, the duller it will become, and the stronger its complement will appear when we look upon a white surface; and if we look upon a color which is the complement of the color first looked at, the effect is just the same as when we print a transparent red over red, or a transparent blue over blue, etc.; the color will appear much more brilliant. This experiment can be tried with Figs. 242 and 243 with a pleasing result.

We will now give an experiment for the purpose of showing that a mixture of prismatic complementary colors will produce white light. The tint which comes into view, after looking at a colored object, is really the same as a prismatic color, only it is not so strong. The reader will again cover all of the figures on Plate 31 except 239 and 240. Then look at the dot on Fig. 239 for a second, then at the dot on Fig. 240 for a second, and keep shifting the eyes at regular intervals of a second each, from one to the other for a half minute; then suddenly look at the dot between the two figures, and there will be seen a clear *white* figure surrounded by gray. The *white* is produced by an *equal* mixture of the complements of the colors in Figs. 239 and 240 upon the retina of the eye. The reader will observe that the colors in the two figures are purposely reversed for the benefit of some of the experiments. This experiment can also be tried with Figs. 242 and 243 with a pleasing result.

If the same experiment be applied to the three primary colors properly balanced, the result will be *white*; also the secondaries properly balanced will produce white by this experiment.

Another experiment showing that sea-green (which is an equal mixture of green and blue) is the complement of red, is shown by mixing the *spectral complements* of green and blue upon the retina of the eye; see illustration below.



After shifting the eyes at regular intervals of a second each from one to the other of the black dots upon the two colors named, for a half minute, then suddenly looking at the black dot between the two, we will see a *pure tint of red*, which is produced by an equal mixture upon the retina, of a red-purple tint (the complement of green) with an orange tint (the complement of blue). This experiment plainly shows that *the complement of red is a color which is an equal mixture of green and blue*.

Maxwell, Church, and Rood all agree that blue and yellow are complementary, instead of blue and orange as advocated by Chevreul. We think that blue and orange are complementary, and that the following experiments prove the correctness of our position; see illustration below.



By looking upon the blue figure for some minutes and then suddenly shifting the vision to the dot on the right, there will be seen a pure orange tint; and if we look upon the orange figure for some minutes and then suddenly shift the vision to the dot on the left, we will see a pure blue tint; and, finally, if we shift the vision at regular intervals of a second each, from one to the other of the two colors named, for a half minute, and then suddenly look at the dot between the two, we will see a clear *white* figure surrounded by gray. The *white* is produced by an equal mixture of the complements of blue and orange upon the retina of the eye; the fact that this experiment produces *white*, proves that the two colors are complementary.

Another very good method of finding the complement of any color is illustrated by the following experiment—see the orange figure on page 26. Take a slip of white paper in one hand, and while looking very intently at the dot upon the orange figure, suddenly move the slip up to the dot, hold it there a few seconds, and then withdraw it for a quarter minute; repeat these movements three or four times, but while doing so, keep looking intently at the dot. Each time the slip is moved up to the dot, that part of it which covers the orange figure will show a most beautiful blue tint. This experiment also shows that blue is complementary to orange.

We will give another experiment as additional proof that orange (which is an equal mixture of red and yellow) is the complement of blue, by mixing the *spectral complements* of red and yellow upon the retina of the eye; see illustration on page 28.

After shifting the eyes at regular intervals of a second each from one to the other of the two colors named, for a half minute, then suddenly looking at the black dot between the two, we will see a *pure tint of blue*, which is produced by an equal mixture upon the retina, of a sea-green tint (the complement of red) with a violet

tint (the complement of yellow). This experiment plainly shows that *the complement of blue is a color which is an equal mixture of red and yellow.*



Any two colors which are complementary will produce *white* when subjected to the experiment just described. If it be applied to any two colors shown in the chromatic circle which are not complementary, then the result will be different, and instead of *white* we will see a *tint* which is produced by an equal mixture of the complements of the two colors upon the retina, and which in every case lies about half way between the *complements* of the two colors selected. For example, say we try orange and violet—see illustration below. After shifting the eyes at regular intervals of a second each, from one to the other of the two colors named, for a half minute, then suddenly looking at the black dot between the two, we will see a *pure green tint*, which is an *equal* mixture of a blue tint (the complement of orange) with a yellow tint (the complement of violet).



By applying this experiment to different pairs of colors shown in the chromatic circle on Plate 32, we obtain the results indicated by the table on page 30.

We will now try sea-green and red-purple. After shifting the eyes at regular intervals of a second each, from one to the other of the two colors named, for a half minute, then suddenly looking at the black dot between the two, we will see a *pure yellow tint*, which is an equal mixture of a red tint (the complement of sea-green) with a green tint (the complement of red-purple). See illustration below.



It will be noticed that by the mixture of the complements of orange and violet (*blue and yellow*) in the eye, we reach the same result as in the mixture of blue and yellow pigments—*green*. But by the mixture of the complements of sea-green and red-purple (*red and green*) in the eye, we get *yellow*, while the mixture of red and green pigments produces brown. If the eyes are allowed to rest upon the orange twice as long as upon the violet, the result will be (when we look at the dot between the two) we will see a tint in which *blue*, the complement of orange, will strongly predominate; and if we allow the eyes to rest upon the violet twice as long as upon the orange, then we will see a tint in which *yellow*, the complement of violet, will predominate. This rule will also apply to any pair of colors given in the following table; also to any pair which may be selected from the chromatic circle on Plate 32.

BY AN EQUAL MIXTURE UPON THE RETINA OF THE EYE OF THE COMPLEMENTS OF				WE OBTAIN A PURE TINT OF
Red	and	Yellow	. . .	Blue.
Red	"	Blue	. . .	Green-yellow.
Red	"	Blue-violet	. . .	Yellow-green.
Orange	"	Green	. . .	Violet.
Orange	"	Violet	. . .	Green.
Yellow	"	Blue	. . .	Red-purple.
Blue	"	Green	. . .	Red.
Sea-green	"	Red-purple	. . .	Yellow.
Sea-green	"	Orange-yellow	. . .	Purple.
Blue-green	"	Violet	. . .	Orange.

It is a curious fact that by the mixture of any two *prismatic* colors which are represented in the chromatic circle on Plate 32, the result will always be a color which lies between the two colors used. If the two colors are about equal in strength then the resulting color will be found about half way between the two; for example, by the mixture of the prismatic red and yellow we get orange, the same as in the mixture of pigments; so it is with red and blue, which produces violet; yellow and blue, which produces green. But by the mixture of the prismatic red and green we get *yellow*; while the mixture of red and green pigments produces brown. And by the mixture of the prismatic green and violet we get *blue*; while the mixture of green and violet pigments produces an olive. Also by the mixture of the prismatic orange and purple we get *red*; while the mixture of orange and purple pigments produces a russet.

By the mixture of prismatic colors which are complementary the result will always be *white*; and by the mixture of prismatic colors which are *nearly* complementary the resulting tint will always be *nearly white*. It follows then, that in the mixture of two pris-

matic colors, the strongest tint will be produced when the colors bear a close relation to each other; for example try red and orange, orange and yellow, yellow and green, green and blue, etc.

The foregoing experiments, in our judgment, tends to disprove the theory advocated by Young, Helmholtz, Maxwell, Church, Rood, and others, that red, green, and blue, are the primary color sensations; also the theory of some writers who claim that red, green, and violet, are the primaries. These experiments really strengthen the theory advocated by Brewster and Chevreul, that *red*, *yellow*, and *blue*, are the true primary colors.

In the selection or use of colors we must not lose sight of the fact that any object which is looked at *immediately* after viewing a colored surface, will be slightly changed in color by the complement of the color of that surface. For example, say we have been looking at a bright *sea-green* color and we suddenly look upon a yellow surface; as *red* is the complement of *sea-green*, the yellow will be slightly changed by *red* toward orange. We again look upon the *sea-green* color for some minutes, and then suddenly look upon a blue object; in this case the *red* will change the blue toward violet. Again, we look at the *sea-green* for a few minutes, and then suddenly look upon a black object; in this case the black will be changed toward brown, because red over black makes brown.

If a black object be viewed upon a white surface, and then the eye is suddenly shifted to a white surface, there will be seen a clear *white* figure surrounded by gray. If a white object be viewed upon a black surface, and then the eye is suddenly shifted to a black surface, there will be seen a deep *black* figure surrounded by a grayish black.

In the use of colors we must always keep in mind the fact that any color occupying a small area of surface, when surrounded by another color occupying a much larger surface, will be strongly

tinted with the complement of the surrounding color. For example, see Fig. 354, Plate 68; the word *contrast* is printed in a pure gray ink, and is exactly registered into the blue cut. The reader will perceive that where the letters are surrounded by blue they are strongly tinted with orange; but where they are surrounded by white, they show their real color—gray. Fig. 355 on the same plate shows the word *contrast* printed in gray and surrounded by red. In this case the gray is very strongly tinted by sea-green the complement of red.

Any color occupying a small area of surface, when surrounded by another color occupying a much larger surface, will be strongly tinted with the complement of the surrounding color.

If surrounded by Red	the color will be tinted with	Sea-green.
If surrounded by Orange	" "	Blue.
If surrounded by Yellow	" "	Violet.
If surrounded by Yellow-green	" "	Purple.
If surrounded by Green	" "	Red-purple.
If surrounded by Sea-green	" "	Red.
If surrounded by Blue	" "	Orange.
If surrounded by Violet	" "	Yellow.
If surrounded by Purple	" "	Yellow-green.
If surrounded by Red-purple	" "	Green.

Very brilliant colors are influenced less by surrounding colors than the more quiet ones; gray being affected more than any other color.





Harmony of Colors.



WE will now turn to Plate 32, which is equal in importance to the key plate. Plate 1 is the key to the mixture of colors, and Plate 32 is the key to the correct combination of colors.

Plate 32.—This plate represents the colors of the solar spectrum, arranged in a circle so as to bring colors which are complementary directly opposite to each other. In combining colors there is a wide difference of opinion as to what is correct and what is not. Of course, when harmony is produced, that is certainly correct. But the question with printers the world over is: *what rule can be safely followed to obtain harmonious results in the combination of colors?* The writer confidently believes that the color chart on Plate 32, with the rules and explanations which follow, will in a great measure fill this very long-felt want.

Having made a close study of the works of the best writers upon the subject of color, during the past six years, and also, having made a great many original experiments in the combination and mixture of colors in the same time, we reached the

conclusion that there are *eight different harmonies of colors*, and have arranged them into two series, as follows:

FIRST SERIES—HARMONIES OF RELATED OR ANALOGOUS COLORS, which includes:

1. *The Harmony of Scale—by Contrast of Tone.*
2. *The Harmony of Scale—by Gradation of Tone.*
3. *The Harmony of Relative Colors—by Contrast of Tone.*
4. *The Harmony of Relative Colors—by Gradation.*
5. *The Harmony of a Dominant Color.*

SECOND SERIES—HARMONIES OF UNRELATED OR CONTRARY COLORS, which includes:

6. *The Harmony of Distant Colors—Equal in Tone.*
7. *The Harmony of Distant Colors—by Contrast of Tone.*
8. *The Harmony of Colors with black.*

By HARMONIES OF RELATED OR ANALOGOUS COLORS is meant the harmony of two or more colors, in each of which, *one color is plainly perceptible*. For example, orange and purple are *near* relatives of red, while orange-yellow and violet-blue are *distant* relatives of red; and the different *tones* and *hues* of red are its *nearest* relatives.

The Harmony of Scale—by Contrast of Tone is produced by the combination of two or more tones of one color, between which there is a decided difference. For example, see Figs. 284, 285, and 286, Plate 39, which shows three different three-color combinations of full-tones, half-tones, and tints; also Figs. 287, 288, and 289, on Plate 40. Fig. 287 is composed of one of the light, and two of the dark tones of red; Fig. 288 is composed of three of the dark tones of yellow; Fig. 289 is composed of a dark tone, full-tone, and half-tone of red. Also, Plate 42 which shows olive and its tint, and Plate 48 which shows sea-green and its tint.



The Harmony of Scale—by Gradation of Tone, is produced in two ways. *First*—by the combination of three or more tones of one color blended into one another, and showing a gradual increase or decrease in depth of tone; for example, the cut on Plate 61 was printed in three different tones of orange blended into one another. This harmony is best illustrated in the colors of the rose, and is frequently seen in the leaves of some plants and trees. *Second*—by the combination of three or more tones of one color, gradually increasing or decreasing in depth of tone, and showing a slight difference in depth between any two adjacent tones; for example, see the borders at top and bottom of Plate 80, which were printed in rose-lake and three of its light tones.

The Harmony of Relative Colors—by Contrast of Tone, is produced by the combination of two or more colors which are somewhat closely related, and between which there is a decided difference in tone; for example, see Fig. 389, Plate 85, which shows a combination of deep violet-blue and light yellow-green, the former being a hue of blue, and the latter a hue of green. Fig. 388 shows a violet-blue and yellow-green about equal in tone, making a poor combination, because the contrast of tone is very weak.

The Harmony of Relative Colors—by Gradation, is produced in two ways. *First*—by the combination of two or more related colors or hues blended into one another, and showing a gradual change from one color to another—the colors being arranged in their natural order as represented on Plate 32; for example, see the borders at top and bottom of Plate 89, which were printed with yellow, green, and blue, blended into one another. This harmony is best illustrated by the colors of the rainbow, and is frequently seen at sunset, the sky being a reddish-orange color at the horizon, and gradually blending, as you look higher, into delicate tints of yellow, green, blue, and violet. *Second*—by

the combination of three or more related colors or hues, showing a gradual change from one color to another, with a dividing line or border separating the colors from one another; for example, take any third section of the chromatic circle on Plate 32.

The Harmony of a Dominant Color is produced by a combination of colors, in which one of them predominates to such an extent that it gives the whole design or figure the appearance of being delicately tinted with that color. This harmony is best illustrated by viewing a pleasing combination of colors through a delicately tinted glass. It is also frequently seen in spectacular plays, when a colored light is thrown upon a scene which is composed of a harmonious arrangement of colored objects. An imperfect illustration of this harmony can be had by viewing Plates 49 and 67 through the tinted sheets which precede them.

BY HARMONIES OF UNRELATED OR CONTRARY COLORS, is meant the harmony of two or more colors which are not related to each other—and which are, therefore, located some distance from each other in the chromatic circle. For example, red is not related to yellow or blue, or any color lying between them; yellow is not related to red or blue, or any color lying between them; and blue is not related to red or yellow, or any color lying between them.

The Harmony of Distant Colors—Equal in Tone, is produced by the combination of two colors which are complementary, or nearly so—each being about equal in depth of tone; for example, see Figs. 245, 251, 264, 274, and many others in this work.

The Harmony of Distant Colors—by Contrast of Tone, is produced by the combination of two colors which are complementary, or nearly so, and between which there is a decided difference in tone; for example, see Figs. 256, 257, 258, 262, 263, 266, 269, and others in this work. Fig. 313, Plate 46, is a fine example of *the harmony of distant colors—by contrast of tone*; it shows a combination of six colors and gold.



245
81 and 148



246
32 and 171



247
44 and 171



248
18 and 85



249
71 and 156



250
90 and 156



251
73 and 148

Two-Color Combinations.



252
30 and 148



253
31 and 41



254
138 and 41



255
3 and 4



256
144 and 157



257
142 and 157



258
36 and 148

Two-Color Combinations.



259
73 and 142



260
41 and 154



261
71 and 154



262
1 and 148



263
44 and 161



264
149 and 161



265
95 and 142

Two-Color Combinations.



266
36 and 85



267
146 and 155



268
78 and 155



269
83 and 140



270
143 and 134



271
135 and 134



272
29 and 144

Two-Color Combinations.



273
75 and 140



274
36 and 52



275
89 and 139



276
6 and 85



277
67 and 2

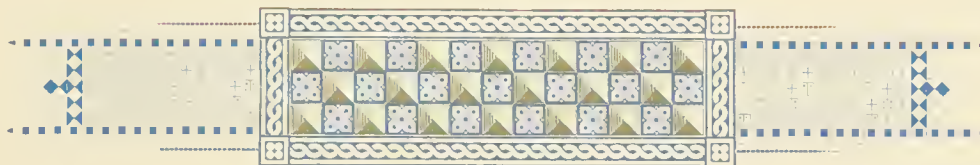


278
57 and 48



279
116 and 142

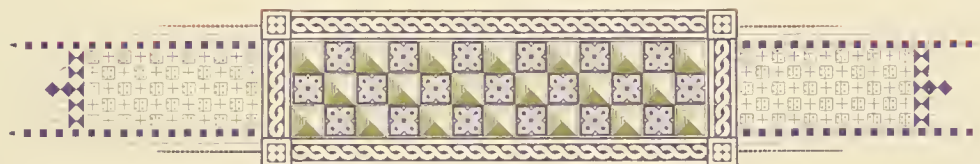
Two-Color Combinations.



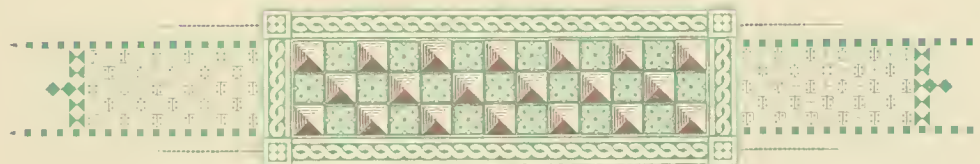
280
3 and 77



281
4 and 68

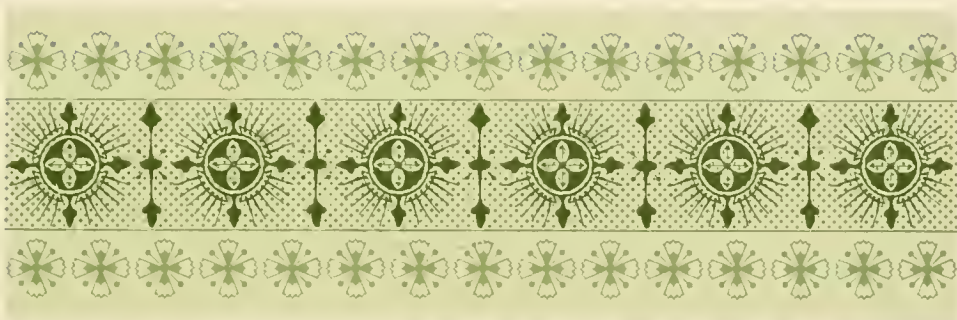


282
59 and 49



283
5 and 96

Two-Color Combinations.



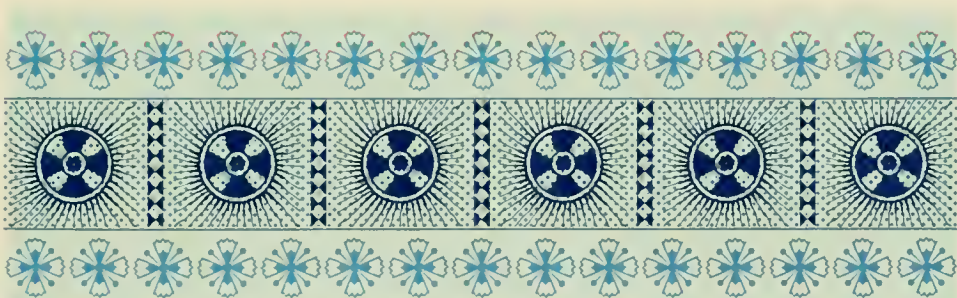
284

75, 144 and 170



285

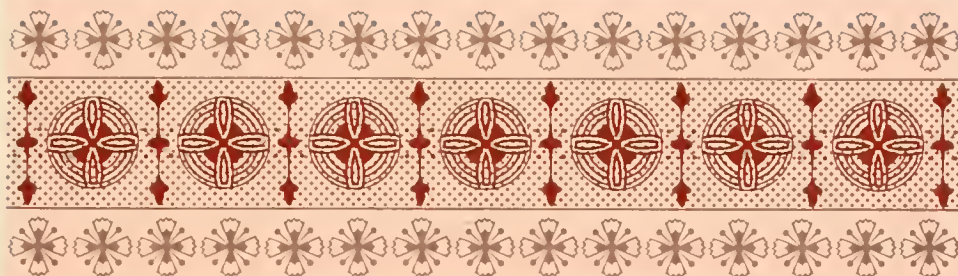
8, 140 and 156



286

7, 139 and 155

Three-Color Combinations.



287

36, 32 and 149



288

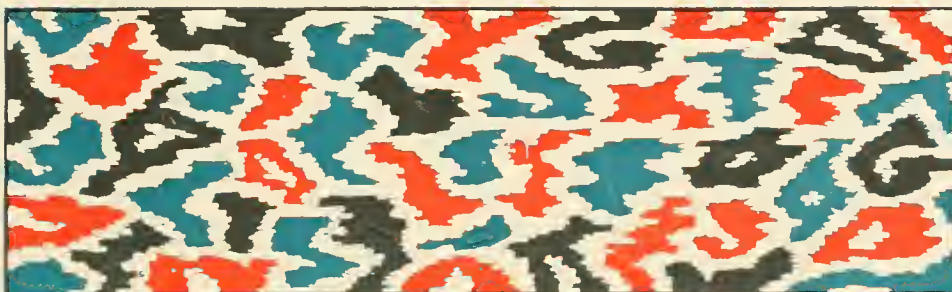
50, 51 and 52



289

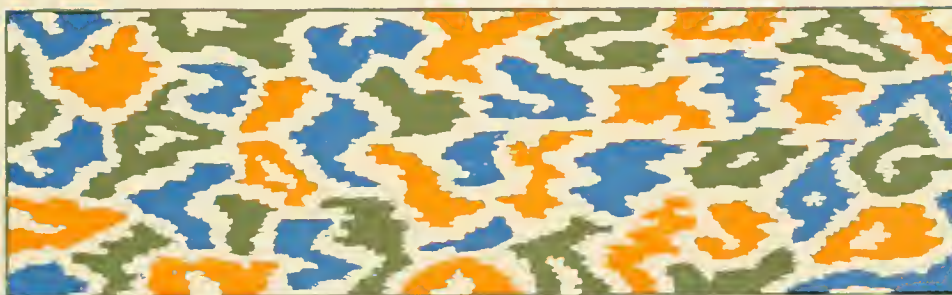
34, 1 and 133

Three-Color Combinations.



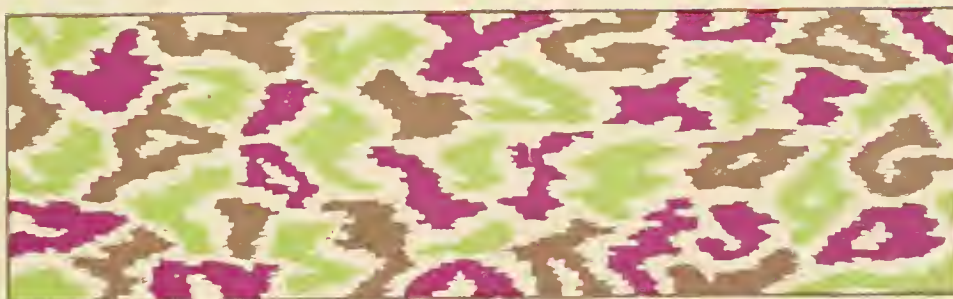
290

1, 83, and both combined.



291

3, 4, and both combined.



292

6, 46, and both combined.

Three-Color Combinations.

The Harmony of Colors with Black, is produced by the combination of black with the *full* tones or *light* tones of the warm colors, and also, with the *light* tones of the cold colors; for example, black and the full tone of yellow; or black and the light tone of violet. In the former case the contrast is very strong, but in the latter it would be very weak if the violet was not made lighter in tone.





Rules for obtaining Harmonious Combinations of Two or More Colors.



WE will again turn to the scale of complementary colors on Plate 32. This scale, or chart, was arranged with the greatest care, so that colors which are complementary would be exactly opposite to each other. If the reader desires to get the strongest combination possible, with any one of the colors shown in this chart, he must take the color directly opposite to the one selected. If *red* be the one selected, then its opposite, *sea-green*, will make its strongest combination. It is hard for the printer nowadays to get out a job of color printing without using red in some form. It is certainly the most important color with which we have to deal. That being the case, we will first give the colors which will harmonize with red.

TWO-COLOR COMBINATIONS.

RED will harmonize with either of the two primaries, *yellow* or *blue*, and also with any one of the colors lying between them, in their normal state, or when reduced with white, or modified with

gray, or darkened with black. The writer thinks that red forms the strongest combination with any one of the colors lying between green and blue reduced to a half-tone with white; for example see Fig. 262, Plate 35.

YELLOW will harmonize with either of the two primaries, *blue* or *red*, and also with any one of the colors lying between them, in their normal state, or when reduced with white, or when slightly modified with gray. The reader will perceive that a very strong contrast exists between yellow, which is the lightest and most luminous color in the chart, and violet, its complement. In fact, when combining yellow with any of the colors which lie between red and blue on the opposite side of the circle, it is not best to make the contrast more violent by the addition of black to any of these colors; instead, a more pleasing combination will be obtained by the addition of white to the color selected, thus reducing the violence of contrast. For example, the contrast between the violet and yellow is very strong. If the violet be reduced with white to a half-tone color, the combination will be much more pleasing, because we then get not only *harmony* of colors, but also a harmonious *contrast* of colors.

BLUE will harmonize with either of the two primaries, *red* or *yellow*, and also with any one of the colors lying between them, in their normal state, or when reduced with white, or modified with gray, or darkened with black. Blue makes the most effective combination with any one of the colors lying between *red* and *yellow*. Its best combination is orange; see Fig. 255, Plate 34.

ORANGE will harmonize with any one of the colors lying between *green* and *violet*, in their normal state, or when reduced with white, or when slightly modified with gray. Orange makes the best combination with any one of the colors lying between *sea-green* and *blue-violet*. For example see Fig. 255, Plate 34.

GREEN will harmonize with any one of the colors lying between *violet* and *orange*, in their normal state, or when reduced

with white, or modified with gray, or darkened with black. The best combination with *green* is its complement, *red-purple*. See Fig. 242, Plate 31.

PURPLE will harmonize with any one of the colors lying between *orange-yellow* and *sea-green*, in their normal state, or when modified with gray, or darkened with black, or when the *greens* are reduced with white. The best combination with *purple* is its complement, *yellow-green*. For example see Fig. 276, Plate 37.

In two-color combinations the reader can safely follow this rule—that any color shown in the *Scale of Complementary Colors* will form a good combination with any one of the seven colors on the opposite side of the circle, in their normal state, or when reduced with white, or modified with gray, or darkened with black.

To obtain the best result in the combination of two tones of one color, or two tones of different colors, always combine a full color with a dark tone, or a full color with a half-tone, or a half-tone with a very light tone. By following this rule a *violent contrast of tone* will be avoided.

In combining two hues, a primary color should show *plainly* in each hue. For example, when a hue of blue and a hue of green are combined, the blue should be moved toward violet and the green toward yellow—that is, in opposite directions on the chart. This would make a combination of *violet-blue* and *yellow-green*. See Fig. 389, Plate 85. The best result will be obtained if a primary color *predominates* in each hue. For example see Fig. 390, Plate 85, which shows a combination of *violet-blue* and *green-yellow*; blue predominates in one color and yellow in the other.

In nearly all of the best two-color combinations it will be found that they are really complementary colors, somewhat modified by the addition of other colors or black.

All specimens of *monochrome* printing (that is, printing in different tones of one color), belong to *the harmony of scale*.



293
Pale Gold, 164 and 51

Pale Gold and Two Colors.



294

FEATHER—Gold, 5, 94, 17, 7 and 83

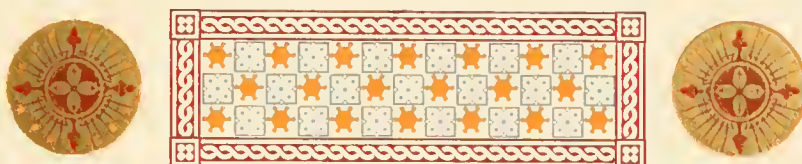
CARD AND BORDER—164, 51 and 171



295
155, Gold and 81



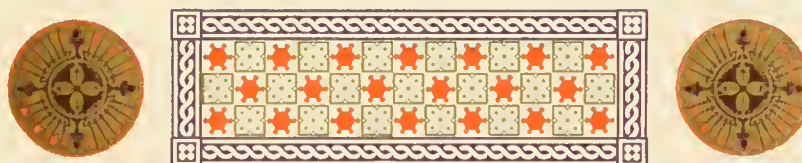
296
163, Gold and 139



297
44, 68 and 18



298
83, Gold and 80



299
13, 52 and 61



300
172, Gold and 73



301
154, Gold and 40

Combinations of Colors and Tints with Gold.



302
150, Gold and 71



303
174, Gold and 78



304
144, Gold and 138



305
71, 142, Gold and 115



306
139, Gold and 20



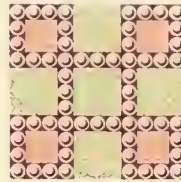
307
170, Gold and 144



308
157, Gold and 137

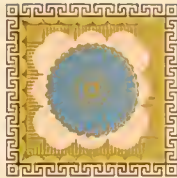
Combinations of Colors and Tints with Gold.

309



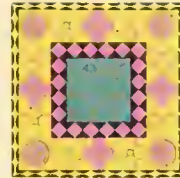
170, 156, Gold and Black

310



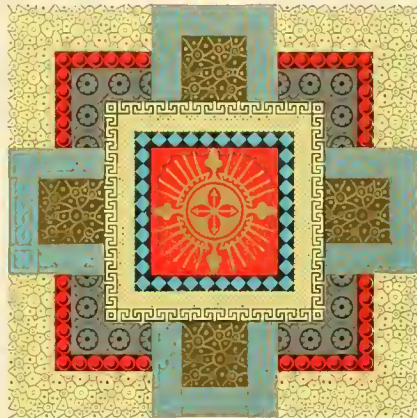
3, 71, 157, Gold and Black

311



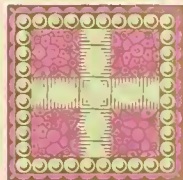
41, 138, 83, Gold and Black

313



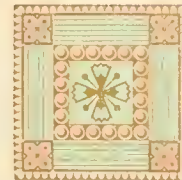
1, 80, 148, 152, 162, Gold and Black

312



138, 170 and Gold

314



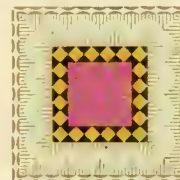
153, 157 and Gold

315



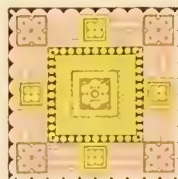
5, 153, 156, Gold and Black

316



6, 71, 170, Gold and Black

317



41, 157, Gold and Black

Combinations of Colors and Tints with Gold.



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318

Butterfly: 78, 143, 2, 36, 83, Gold and 114
Card: 155 and 7

The combination of colors which are complementary, while not always the most pleasing, is sure to produce the strongest contrast; for example see Figs. 239 and 242, Plate 31; also Figs. 255, Plate 34; 262, Plate 35; 276, Plate 37, and many others. For bold and effective work the combination of complementary colors can not be excelled.

By the combination of two colors which are complementary, each color gains in fullness, while the combination of two colors which are not complementary, will cause each color to move a little toward the complement of the other.

The combination of cold and warm colors always results in the warm colors appearing warmer and the cold ones colder.

All of the primary colors are increased in strength and fullness, when combined with white on a gray ground.

When there is a lack of harmony or contrast between any two colors, they should be separated by a band of black, white, gold, or some neutral color which will harmonize with both.

A very effective two-color combination is obtained by combining a primary or secondary color with its complementary gray—that is, a gray to which its complement has been added. For example, see the figures on Plate 38. Fig. 280 is a combination of *blue* and *orange-gray*; Fig. 281 shows *orange* and *blue-gray*; Fig. 282 shows *violet* and *yellow-gray*; and Fig. 283 shows *green* and *purple-gray*.

BLACK will form a good combination with any color lying between *red* and *blue* on the right side of the circle. The light tones of blue should be used in combination with black, otherwise the *contrast* will be weak.

Black forms its best combination with orange-red or vermilion. A common mistake with printers generally, is the combining of a purple-red or rose-lake with black. Purple-red or rose-lake will combine well with black, *only* after the black has been moved toward green by the addition of green or yellow.

Gray will form good combinations with any of the colors shown in the circle, especially the ones lying between red and green; its best combinations being yellow, and the light tones of red, orange, and green.

COMBINATIONS OF THREE OR MORE COLORS.

In many of the best three-color combinations it will be found that they are really combinations of the primary colors in a modified form; that is, *red* predominates in one color, *yellow* in another, and *blue* in the other. For example, the *red* may be modified with gray, or shaded with black, or moved toward orange or purple; the *yellow* may be modified with gray, or shaded with black, or moved toward orange or green; the *blue* may be modified with gray, or shaded with black, or moved toward green or purple. In the combination of the three primary colors modified, they should always be moved in the same direction around the circle; that is, if the *red* be moved toward purple, then the *yellow* must be moved the same distance toward orange, and the *blue* the same distance toward green. If the *red* be moved toward orange, then the *yellow* must be moved the same distance toward green, and the *blue* the same distance toward purple. This rule will also apply to any combination of three colors shown on Plate 32.

RED will harmonize with the other two primaries, *yellow and blue*; also with *yellow and green-blue*, *yellow and violet-blue*, *green-yellow and blue*, *green-yellow and violet-blue*, and *yellow-green and violet-blue*. If the red be moved a little toward purple, or a little toward orange, then the other colors in the combination must be moved an equal distance in the same direction around the circle, so that they will be at the same relative distance from each other as before the change in the red. Any of the pairs of colors named will form a good combination with *red*, in their normal state, or when reduced with white, or modified with gray, or darkened with black.

YELLOW will harmonize with the primaries, *red and blue*; also with *purple-red and blue*, *orange-red and blue*, *orange-red and violet-blue*, *purple-red and green-blue*, and *red-purple and sea-green*. Any of the pairs of colors named will form a good combination with *yellow*, in their normal state, or when reduced with white, or modified with gray, or darkened with black.

BLUE will harmonize with the primaries, *yellow and red*; also with *yellow and purple-red*, *yellow and orange-red*, *green-yellow and red*, *green-yellow and purple-red*, and *green-yellow and orange-red*. Any of the pairs of colors named will form a good combination with *blue*, in their normal state, or when reduced with white, or modified with gray, or darkened with black.

ORANGE will harmonize with *green and violet*, *green and purple-violet*, *blue-green and violet*, *blue-green and purple-violet*, *sea-green and purple-violet*, and *sea-green and purple*, in their normal state, or when reduced with white, or modified with gray, or darkened with black.

GREEN will harmonize with *violet and orange*, *violet and orange-red*, *blue-violet and orange-red*, and *purple-violet and orange*, in their normal state, or when reduced with white, or modified with gray, or darkened with black.

PURPLE will harmonize with *orange and blue-green*, *orange and sea-green*, *yellow-orange and blue-green*, *yellow-orange and sea-green*, and *orange-yellow and sea-green*, in their normal state, or when reduced with white, or modified with gray, or darkened with black.

In three-color combinations the reader can safely follow this rule—that any three colors shown in the *Scale of Complementary Colors*, will form a good combination when they are selected as far from one another as possible. There should be at least four colors between any two colors on the *warm* side of the scale, and at least five colors between any two colors on the *cold* side of the scale.

For example, in the combination *red, yellow, and blue*, there are four colors between red and yellow, six colors between yellow and blue, and seven colors between blue and red; in the combination *purple-red, green-yellow, and violet-blue*, there are six colors between purple-red and green-yellow, six colors between green-yellow and violet-blue, and five colors between violet-blue and purple-red.

COMBINATIONS WITH BLACK.

In the use of black, there is one point the reader must not lose sight of; and that is, that black should be combined with a *cold* color, only after the cold color has been reduced with white.

The following is a list of good three-color combinations, including black:

Black, red, and yellow.

Black, red, and green-yellow.

Black, red, and yellow-green.

Black, red, and the light tones of green, blue-green, sea-green, green-blue, and blue.

Black, orange-red, and green-yellow.

Black, orange-red, and yellow-green.

Black, orange-red, and the light tones of green, blue-green, sea-green, green-blue, and blue.

Black, orange, and yellow-green.

Black, orange, and the light tones of green, blue-green, sea-green, green-blue, blue, and violet-blue.

Black, yellow-orange, and the light tones of blue-green, sea-green, green-blue, blue, violet-blue, and blue-violet.

Black, orange-yellow, and the light tones of sea-green, green-blue, blue, violet-blue, blue-violet, and violet.

Black, yellow, and the light tones of green-blue, blue, violet-blue, blue-violet, violet, and purple-violet.

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171, Copper Bronze and 83

Copper Bronze and Two Colors.

Black, green-yellow, and the light tones of blue, violet-blue, blue-violet, violet, purple-violet, and purple.

Black, yellow-green, and the light tones of violet-blue, blue-violet, violet, purple-violet, purple, red-purple, and purple-red.

Black, red and green-gray.

Black, red and blue-gray.

Black, orange-red and green-gray.

Black, orange-red and blue-gray.

Black, light green and purple-gray.

Black, light green and red-gray.

Black, light blue and yellow-gray.

COMBINATIONS WITH GRAY.

Gray will form a good combination with any two colors which are complementary or nearly so. It is the happy medium between black and white. Any color seen upon a black ground will appear paler; when seen upon a white ground it will appear deeper; but when seen upon a gray ground it will appear at its true value. For example see Figs. 399 and 400, on Plate 87.

In forming combinations of three different colors, it is generally most effective to combine a *full-color*, a *half-tone*, and a *tint*; or a *deep-shade*, a *full-color*, and a *half-tone*. The reason is, that in such combinations we have *harmony of contrast* as well as *harmony of colors*.

DESCRIPTION OF PLATES SHOWING COMBINATIONS OF TWO COLORS.

Plates 33 to 38, inclusive, show a variety of fine two-color combinations which belong to *the harmony of distant colors*.

Plate 33.—Fig. 245 on this plate is a combination of one of the dark tones of orange and a light green-blue. Fig. 246 is composed of red-gray and a sea-green tint. Fig. 247 is composed of a light brown and a sea-green tint. Fig. 248 is composed of

a purplish hue of red and a light green—a strong combination. Fig. 249 is composed of a sage-green and a rose-lake tint. Fig. 250 is composed of a green-gray and a rose-lake tint. Fig. 251 is composed of a light red-brown and a light green-blue.

Plate 34.—Fig. 252 on this plate is composed of a fine bright red and a light green-blue. Fig. 253 is composed of a red-gray and a green-yellow. Fig. 254 is composed of a half-tone purple and a green-yellow. Fig. 255 is composed of the complementaries, blue and orange. Fig. 256 is composed of a half-tone olive and a flesh tint. Fig. 257 is composed of a light blue-green and a flesh tint. Fig. 258 is composed of one of the dark tones of red and a light green-blue.

Plate 35.—Fig. 259 is composed of a light red-brown and a light blue-green. Fig. 260 is composed of a green-yellow and a purple tint. Fig. 261 is composed of a sage-green and a purple tint. Fig. 262 is composed of red and a light green-blue—a very strong combination. Fig. 263 is composed of a light brown and a pearl tint. Fig. 264 is composed of a red tint and a pearl tint. Fig. 265 is composed of a purple-red and a light blue-green.

Plate 36.—Fig. 266 is composed of one of the dark tones of red and a light green—an excellent combination. Fig. 267 is composed of a light brown and a blue tint. Fig. 268 is composed of a gray-orange and a blue tint. Fig. 269 is composed of sea-green and a half-tone rose-lake—a strong combination. Fig. 270 is composed of a light violet and a half-tone yellow. Fig. 271 is composed of a half-tone blue and a half-tone yellow. Fig. 272 is composed of a light red and a half-tone olive—an excellent combination.

Plate 37.—Fig. 273 is composed of olive and a half-tone rose-lake. Fig. 274 is composed of a dark tone of red and a dark tone of yellow—a good combination. Fig. 275 is composed of a light brown and a half-tone blue. Fig. 276 is composed of purple and light green—a very good combination. Fig. 277 is composed

of a blue-gray and yellow. Fig. 278 is composed of blue-green and orange. Fig. 279 is composed of one of the dark tones of rose-lake and light blue-green—a good combination.

Plate 38.—Fig. 280 is composed of blue and orange-gray. Fig. 281 is composed of orange and blue-gray. Fig. 282 is composed of violet and yellow-gray—a good combination. Fig. 283 is composed of green and purple-gray—a splendid combination.

The assortment of splendid two-color combinations just described, were selected with great care. Some of the figures are composed of full colors, and others of half-tones or tints. In selecting any of these combinations for use in fancy printing, consisting of type, borders, etc., it is best to print the type matter in the deepest or darkest of the two colors used. Sometimes an ornamental initial letter, or a bold display line, will look better if printed in the lighter of the two colors.

DESCRIPTION OF PLATES SHOWING COMBINATIONS OF THREE
OR MORE COLORS.

Plate 39.—This plate shows three three-color combinations, which are good examples of *the harmony of scale—by contrast of tone*. A combination of different tones of one color is always pleasing, it matters not what color may be used. This is very properly called *monochrome* printing. Fig. 284 is composed of olive in the full-color, half-tone, and tint. Fig. 285 is composed of rose-lake in the full-color, half-tone, and tint. Fig. 286 is composed of deep blue in the full-color, half-tone, and tint; this is a very effective combination.

Plate 40.—This plate also shows three three-color combinations, good examples of *the harmony of scale*. Fig. 287 is composed of two of the dark tones and one of the light tones of red. Fig. 288 is composed of three of the dark tones of yellow. Fig. 289 is composed of red in the full-color, half-tone, and a dark tone.

Plate 41.—This plate shows three three-color combinations; in each figure two of the colors are complementary, and the third color is a mixture of the two. Fig. 290 is composed of red, sea-green, and *black*; the latter was produced by a mixture of the red and sea-green shown in this figure. Fig. 291 is composed of orange, blue, and an olive produced by a mixture of the two. Fig. 292 is composed of purple, light green, and a color produced by a mixture of the two.

Plate 42.—This plate contains only one specimen—Fig. 293; it is composed of one of the dark tones of yellow, its tint, and pale gold. This combination belongs to *the harmony of scale*.

Plate 43.—This plate shows a very elaborate specimen—Fig. 294—printed in gold and eight colors. In the feather, the gold was printed first; then the green; then the reddish purple; then the maroon-red; then the deep blue, and finally the sea-green. The card and border was printed in color No. 51 and its tint, and a sea-green tint.

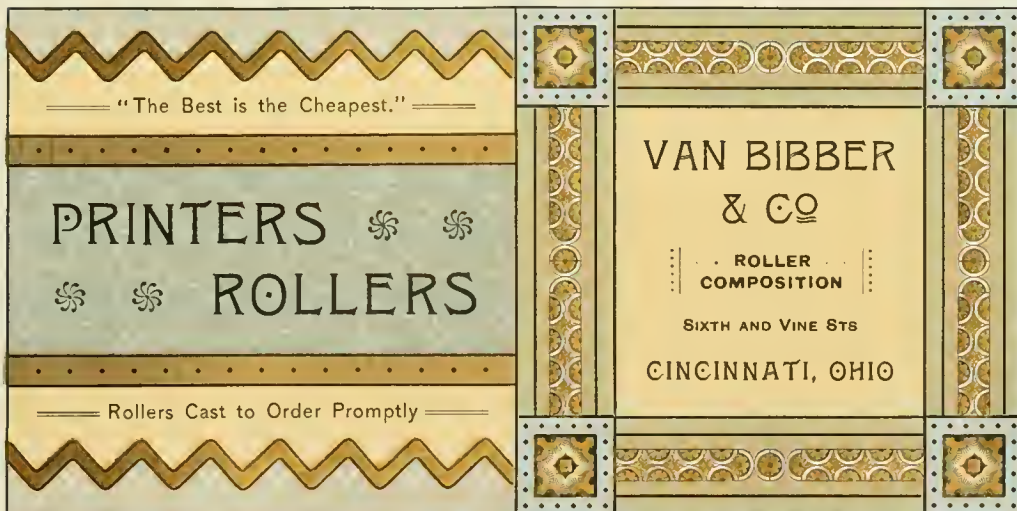
Plate 44.—This plate contains some elegant combinations of gold and two colors. Fig. 295 was first printed in a blue tint, then in gold, and then in one of the dark tones of orange. Fig. 296 was first printed in a flesh tint, then in gold, and then in a half-tone of deep blue. Fig. 297 is a combination of the three primaries—red, yellow, and blue, modified by mixture with other colors. Fig. 298 is a splendid combination of sea-green, gold, and one of the dark tones of orange, printed in the order named. Fig. 299 is a combination of the three primaries—red, yellow, and blue, modified by mixture with other colors. Fig. 300 was first printed in a delicate green tint, then in gold, and then in a light red-brown. Fig. 301 was first printed in a purple tint, then in gold, and then in a light green.

Plate 45.—This plate also contains some splendid combinations of gold and colors. Fig. 302 was first printed in a yellow tint, then in gold, and then in a sage green; this is a good example of *the harmony of relative colors*—the colors, including gold, being



320

Gold, 153, 156, 158 and Black



321

Gold, 151, 152, 158 and Black

Combinations of Gold, Black and Three Tints.



322

95, 80 and Gold Ink



324

95, 7 and Gold Ink



326

80, 7 and Gold Ink

Combinations of Gold Ink and Colors on Green Enameled Paper.



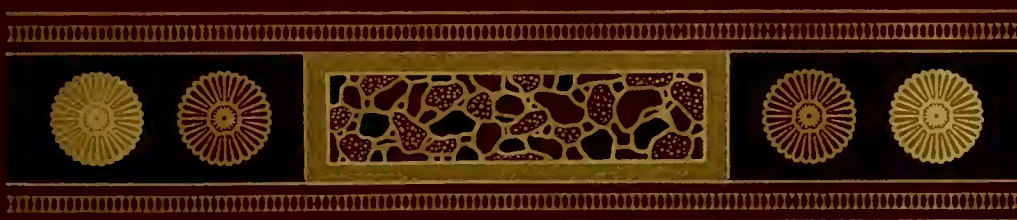
327

45, 80 and Gold Ink



329

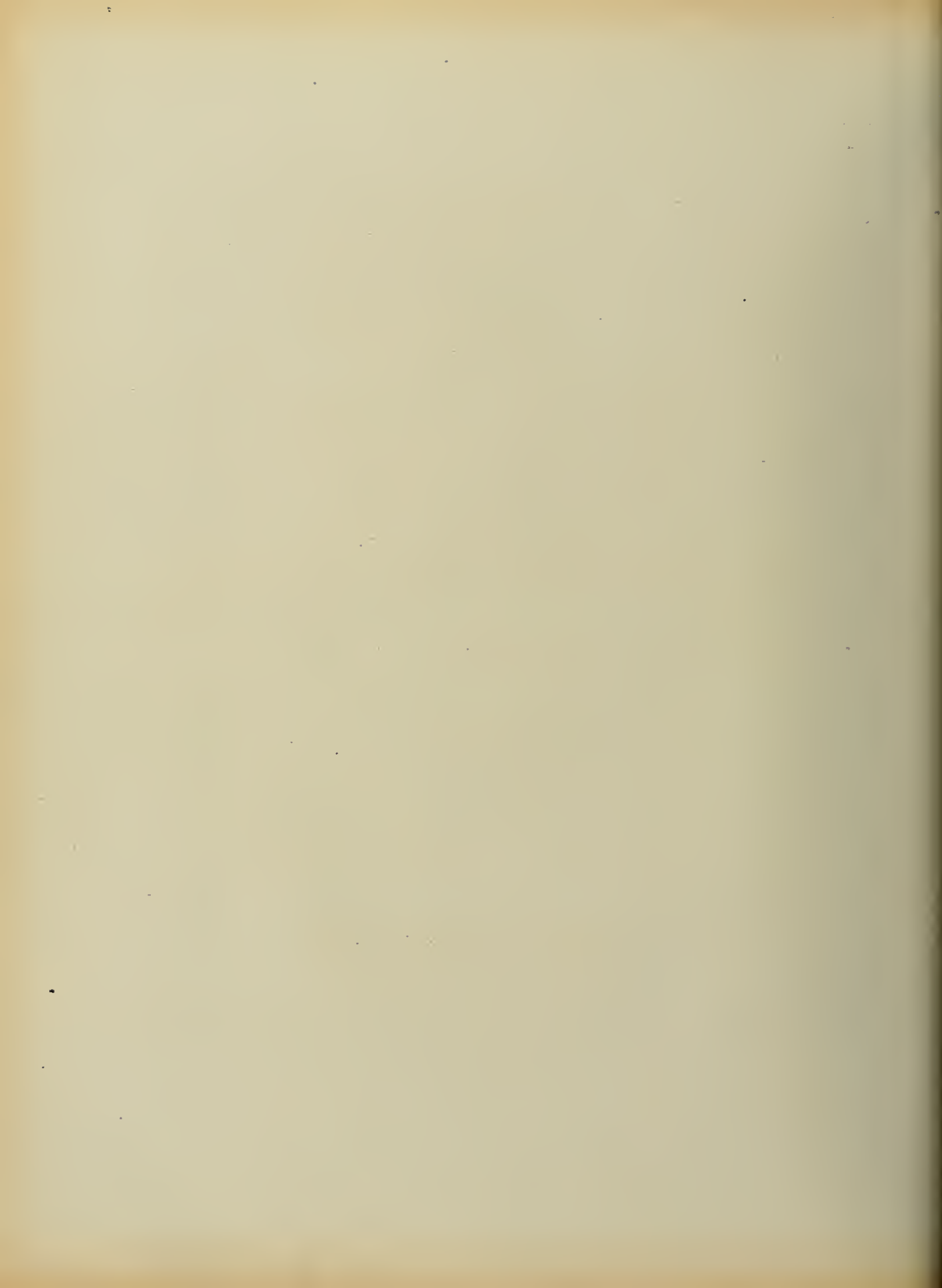
45, 7 and Gold Ink



331

80, 7 and Gold Ink

Combinations of Gold Ink and Colors on Maroon-Brown Enamelled Paper.





332
45 and Gold Ink



333
7 and Gold Ink



334
45, 10, White and Gold Ink



335
7, 45, 10, White and Gold Ink

Combinations of Gold Ink and Colors on Black Enameled Paper.

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nearly related to yellow. Fig. 303 was first printed in a pearl tint, then in gold, and then in one of the dark tones of orange. Fig. 304 is a fine combination of two colors which are nearly complementary, and gold; the half-tone olive was printed first, then the gold, and then the half-tone purple. Fig. 305 is composed of a sage-green, a light blue-green, gold, and a deep photo-brown, printed in the order named—making a splendid combination. Fig. 306 was first printed in a half-tone of deep blue, then in gold, and then in a light red. Fig. 307 was first printed in an olive tint, then in gold, and then in a half-tone olive; this specimen belongs to *the harmony of scale*. Fig. 308 was first printed in a flesh tint, then in gold, and then in a half-tone green.

Plate 46.—This plate contains nine different combinations of gold and colors. Fig. 309 was first printed in an olive tint, then in a rose-lake tint, then in gold, and then in black. Fig. 310 was first printed in blue, then in sage-green, then in a flesh tint, then in gold, and then in black. Fig. 311 was first printed in a greenish yellow, then in a half-tone purple, then in sea-green, then in gold, and then in black. Fig. 312 was first printed in a half-tone purple, then in an olive tint, and then in gold. Fig. 313* was first printed in red, then in one of the dark tones of orange, then in a light green-blue, then in gray, then in a primrose tint, then in gold, and then in black—making a splendid combination. In this design the light green-blue was treated in two different ways—by printing an open border over it in black, causing it to appear more blue, and by printing an open border over it in gold, causing it to appear more green. Fig. 314 was first printed in a green tint, then in a flesh tint, and then in gold. Fig. 315 was first printed in green, then in a green tint, then in a rose-lake tint, then in gold, and then in black. Fig. 316 was first printed in purple, then in a sage-green,

*The number 152 which is printed below Fig. 313, represents an orange tint; it should have been number 11, which represents gray.

then in an olive tint, then in gold, and then in black. Fig. 317 was first printed in a greenish yellow, then in a flesh tint, then in gold, and then in black.

Plate 47.—The only design shown on this plate is Fig. 318, which represents a butterfly and business card. This is a splendid example of *the harmony of distant colors*. It was not the intention of the writer to stick very close to nature in coloring this butterfly, but instead we aimed to show an odd, and at the same time a correct combination of colors. We believe that printers everywhere will be well pleased with not only the combination, but also with the excellent presswork shown in this specimen. The first color printed in the butterfly was No. 78, one of the dark tones of orange; then a half-tone violet, then yellow, then one of the dark tones of red, then sea-green, then gold, and then a deep photo-black. The card was first printed in a blue tint with an electrotpe taken from emery paper, and then in a deep blue.

Plate 48.—Fig. 319 on this plate was first printed in a sea-green tint, then in copper bronze, and then in sea-green; it was then embossed with a box-wood plate made with steel punches.

Plate 49.—This plate contains two specimens of cards printed in gold, three tints, and black. Fig. 320 was first printed in gold, then in a green tint, then in a rose-lake tint, then in a gray tint, and then in black. Fig. 321 was first printed in gold, then in a blue tint, then in an orange tint, then in a gray tint, and then in black. In both of these cards some very fine tints are produced by printing the gray tint over the rose, green, blue, and orange tints.

Plate 50.—This plate, as well as the two following, is intended specially to show printers some good results in printing gold ink and colors on colored enameled cover papers. Fig. 322 was first printed in a purplish red, then in color No. 80, which is one of the dark tones of orange, and then in gold ink. By refer-

Sample page of Embossing Borders and Corner Pieces. The borders are made in two, three and four-em pica widths, and four, eight and twelve-em pica lengths.

ring to Plate 10, the reader will see that Fig. 80 is a rather dark color, in which black predominates; but when printed on the deep green paper, the orange predominates. Fig. 324 was first printed in a purplish red, then in a deep blue, and then in gold ink. Fig. 326 was first printed in No. 80, then in a deep blue, and then in gold ink. These splendid effects can be used to great advantage on fancy covers for catalogues, and other work of a similar character.

Plate 51.—The figures on this plate are printed the same as Plate 50, except that a deep green was used in place of the purplish red. Fig. 327 was first printed in color No. 45, which is a deep green; then in No. 80, and then in gold ink. Fig. 329 was first printed in a deep green, then in deep blue, and then in gold ink. Fig. 331 was first printed in No. 80, then in deep blue, and then in gold ink.

Plate 52.—This plate shows some excellent results, obtained by printing gold ink and colors on black enameled paper. We have used some odd figures on this plate, merely suggestive of some of the uses which can be made of this paper. Fig. 332 was first printed in a deep green, and then in gold ink. Fig. 333 was first printed in deep blue, and then in gold ink. Fig. 334 was first printed in a deep green, then in vermilion, then in white, and then in gold ink. Fig. 335 was first printed in deep blue, then in a deep green, then in vermilion, then in white, and then in gold ink. To obtain the best result in printing red and white on black paper, the inks must be *opaque*, so that they will cover the black as completely as possible. The same rule will apply to yellow or any other luminous color.

Plate 53.—Fig. 336 on this plate was first printed in a green tint, then in a yellow-green tint, and then in one of the dark tones of orange. This specimen is an example of *the harmony of relative colors*.

Plates 54 and 55.—These plates show nine different patterns of embossing borders, made in two, three, and four-em pica widths, and

four, eight, and twelve-em pica lengths. The corner pieces are made in two, three, and four-em pica squares. The manner of embossing with these borders is fully explained in another part of this work.

Plate 56.—This plate represents a business card printed in gold and three colors, lying across a page framed with an embossed border. The first color printed was a gray tint as a solid ground for the page above and below the card; then the orange tint was printed solid in the card, and as a figured pattern on the inside of the page over the gray tint; then the gold was printed in solid bands on the card; then figured borders were printed in green over the gold bands; then all of the type matter and the outlines of the card were printed in color No. 81, which is one of the dark tones of orange. Finally, the embossing border was printed in a pearl tint, and embossed at the same time. The card is an excellent example of *the harmony of relative colors*—all of the colors, including gold, being closely related to yellow.

Plate 57.—This plate represents a handsome cover page, printed first in gray, then in gold, then in a figured sea-green tint over the gray, then in deep blue, and then in one of the dark tones of red; the gold bands were then embossed.

Plate 58.—Fig. 341 on this plate was first printed in a light green, and then in copper bronze. It was then embossed with a box-wood plate, containing nine different patterns made with soft steel punches. The outlines of the plate were cut with a round graver.

Plate 59.—This plate was first printed in a flesh tint and then in one of the dark tones of orange. The sheet was then embossed with a plate made with four of the punches used on Plate 58.

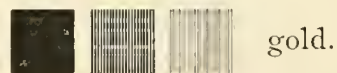
Plate 60.—This plate shows an imitation of both sides of leather paper, embossed. Fig. 343, representing the right side, was printed in a deep photo-brown, and was then embossed with an electrotpe, taken from a sheet of embossed tin used by trunk-makers; the type matter was then printed over it in green bronze.

Sample page of Embossing Borders and Corner Pieces. The borders are made in two, three and four-em pica widths, and four, eight and twelve-em pica lengths.

Fig. 344, representing the wrong side, was printed in a manilla color and embossed from an electrotype taken from the other side of the tin mentioned above.

Plate 61.—The figure upon this plate was first printed in orange and two of its dark tones blended together; then the type matter and borders at the sides were printed in its darkest tone. This combination belongs to *the harmony of scale*.

Plate 62.—This is a most interesting plate, showing a great variety of handsome colors produced by printing the colors red, blue, yellow, gray, and black, in lines and solids over gold bronze printed in lines and solids. The reader will probably find on this plate many effects in printing which he has not seen before. We will not explain each one separately, as the matter printed below each figure makes this unnecessary; we will, however, show the cuts which were used to produce the figures printed in four colors. For example, the fourth figure to the right of black, showing *black on blue on red on gold*, was printed with the cuts below, in the order named:



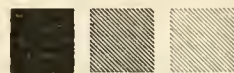
gold.



red.



blue.



black.

The cuts were specially engraved to show the colors in solids, half-tone lines, and tint lines. The different colors were produced

by printing solids over solids, half-tone lines over half-tone lines, and tint lines over tint lines. Each of the nine colors on the right side of the plate were produced by printing half-tone lines in two colors over one another on solid gold. The five pairs of colors at the bottom of the plate were produced by printing colors in half-tone lines over gold solids, and in solids over half-tone gold lines. A score or more of fine metallic colors are produced by printing one or more colors over solid gold. Some of the colors on this plate look very much like fine cloth goods with golden threads interwoven. The reason for this is because the lines in no two of the cuts run in the same direction. In the first cut they are perpendicular; in the second, horizontal; in the third they run diagonally from the right, down to the left; and in the fourth they run diagonally from the left, down to the right, so that when the four cuts are printed over one another, each color is plainly visible; especially so if the reader will examine any one of the figures on Plate 62 with a small magnifying glass. We believe that a greater number of fine effects in color printing has never been produced by six impressions.

Plate 63.—The card on this plate is a good illustration of the use of the effects shown on Plate 62. The same colors were used, printed in the order named. In this card we aimed to produce, with a few impressions, a great variety of colors arranged in harmonious groups; some of the most effective are the dull metal colors, produced by printing colors over gold bronze. For example, the reader will refer to the numbers 3, 6, 12, 9, 17, 29, and 35 in the key-form on Plate 64. 3 represents a reddish copper produced by printing red over gold. 6 represents a steel blue produced by printing blue over gold. This card is a fine example of *the harmony of distant colors*.

Plate 64.—This plate represents the key-form of the card on the preceding plate. It was set up altogether in type and brass

rule. We used the pansy in this card, because it is a flower that frequently contains both the primary and secondary colors, if the leaves are included. The location of the different colors produced by printing the colors named in lines and solids over one another, is indicated by numbers ranging from 1 to 37, inclusive.

Plate 65.—This plate was first printed in a blue-gray, then in a yellow gold, and then in one of the dark tones of red—making an effective combination.

Plate 66.—This plate represents a program card, and the first page of a menu card, lying on a sheet of stippled paper. It was first printed in an olive tint, then in gold, then a light red, and finally in one of the dark tones of orange; then the words “menu” and “program” were embossed. The ornamental bands at the top and bottom of the menu page are excellent specimens of color combination.

Plate 67.—Fig. 351 on this plate is a fine specimen of card work, printed in gold and four colors. The first impression was pale gold; then a sea-green tint was printed; then a flesh tint; then a gray tint, and finally one of the dark tones of red.

Plate 68.—The figures on this plate are intended to show the effects produced upon different colors, by placing them in contrast with the different tones of other colors. Fig. 352 shows red surrounded by the different tones of black; the result is that the letter C which is surrounded by solid black appears much lighter than the letter R which is surrounded by a half-tone black; and the letter C appears very much lighter than the letter T which is surrounded by white. The same will apply to Fig. 353 which shows yellow in contrast with black, Fig. 354 which shows gray in contrast with blue, and Fig. 356 which shows gray in contrast with black. In Figs. 354, 355, and 356 the gray was printed in one impression. We call the special attention of the reader to the letter C in each of these figures; note the apparent difference be-

tween these letters. Surrounded by blue, the C appears to be a yellow-gray; surrounded by red it appears to be a green-gray; surrounded by black it is a pure gray, but appears much lighter than it is in fact. The apparent change which takes place in a color, when it is surrounded by another color, is due to the fact that *any color occupying a small area of surface will be strongly tinted with the complement of the color which surrounds it.*

Plates 69 to 79, inclusive.—These plates represent a series of impressions showing a landscape printed in ten colors. Each block is shown separate and also as registered into its proper place as the work progresses toward completion. The picture represents a scene in the Pyrenees Mountains, in Southern France, and was reproduced from an old picture printed in the early part of this century. Fig. 376, on Plate 79, is the completed picture; the last impression was the border, or mat, which was printed in a green-gray, and then the whole picture was embossed, or roughed, with an electrotype taken from a sheet of emery paper.

Plate 80.—The borders at top and bottom of this plate were printed in rose-lake and three of its light tones—making a fine example of *the harmony of scale—by gradation of tone*; then the back-ground of the page was printed in an olive tint from an engraved plate; then the type form was printed in olive—the whole producing a most pleasing and harmonious page.

Plate 81.—Fig. 378 on this plate shows an impression from an electrotype taken from emery paper. Fig. 379 shows an impression in a deep blue-black from a plate engraved with bunches of needles fastened together.

Plate 82.—Fig. 380 shows an impression in a deep photo-brown from a piece of walnut wood, side grain. Fig. 381 shows an impression in the same color, from a piece of ash wood, side grain.

Plate 83.—Fig. 382 shows an impression from a piece of quartered oak wood. Fig. 383 shows an impression from a piece

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339

158, 152, Gold, 5, 81 and 160

The border around the page was printed with Color No. 160 and embossed at the same time.

of shell-bark hickory wood, end grain. Various woods can be used to good advantage for tint plates. For instance, the writer has many times printed cards, letter-heads, checks, etc., in a deep buff tint and one or more colors, for different lumber merchants; the buff was printed as a back-ground from a piece of natural ash or oak wood. In one case the type form was printed in a deep yellow-brown, producing a fine effect—a good specimen of *the harmony of relative colors*.

Plate 84.—The figures on this plate show four different tint patterns printed from stereotype plates taken from different patterns of book cloth. Figs. 384 and 385 were taken from the right and wrong sides of one pattern, and Figs. 386 and 387 from the right and wrong sides of another pattern.

Plate 85.—This plate shows three different combinations of hues. Fig. 388 is composed of a light violet-blue and a yellow-green; as both colors are nearly related, and are also about equal in tone, the combination is weak. Fig. 389 is also composed of violet-blue and yellow-green, but the violet-blue is much deeper and the yellow-green lighter than in Fig. 388; as a result, it is a better combination because of its contrast of tone. Fig. 390 is composed of violet-blue and green-yellow—an excellent example of the harmony of hues.

Plate 86.—The figures on this plate were printed with inks not shown in any other part of this book. Fig. 391 is composed of ultramarine blue and persian orange. Fig. 392 is composed of bronze-brown and green lake. Fig. 393 is composed of bronze-blue, bronze-brown, and green lake—an odd combination. Fig. 394 is composed of carmine and green lake. Fig. 395 is composed of bronze-blue and persian orange.

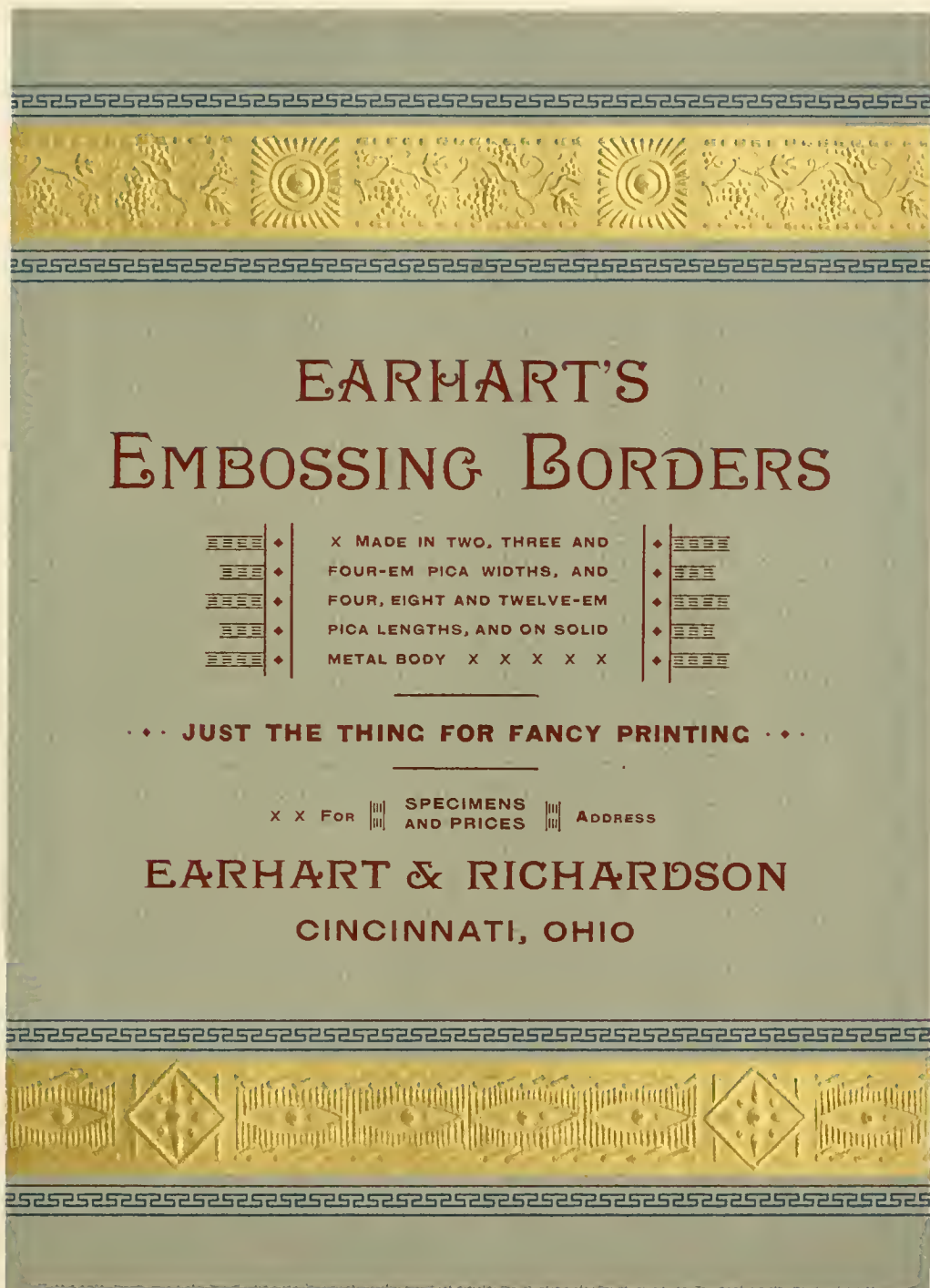
Plate 87.—Fig. 396 on this plate shows the different effects produced by printing an open border in gray, black, and gold, on red. Fig. 397 shows the different effects produced by printing the

same colors on green; and Fig. 398 shows the different effects produced by printing the same colors on blue. Fig. 399 shows the changes which apparently take place in *red*, when it is surrounded by different colors; when surrounded by blue it appears tinged with orange; when surrounded by gray it appears at its true value; when surrounded by black it appears a little lighter than it is, and when surrounded by white it appears a little deeper than it is in fact; when surrounded by green it appears more brilliant than in either of the cases just mentioned. It appears most brilliant when surrounded by sea-green, its complement. Fig. 400 shows the changes which apparently take place in *black*, when it is surrounded by different colors; when surrounded by blue it appears slightly tinged with orange; when surrounded by gray it is seen at its real strength; when surrounded by red it appears slightly tinged with sea-green; when surrounded by white it appears darker than it is in fact; when surrounded by green it appears to be tinged with red-purple, the complement of green. The eyes must be held about twenty inches above the page while testing the explanations just given, to obtain the best result.

Plate 88.—This plate shows a combination of black and deep vermilion. By reading the matter on this plate it will be seen that no further explanation is necessary.

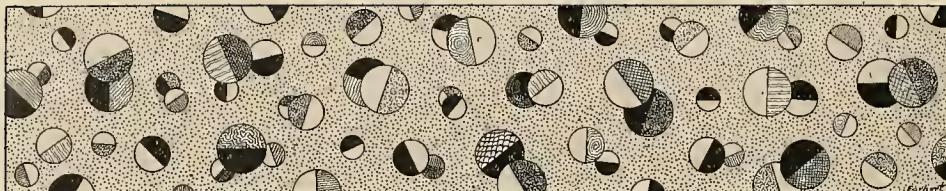
Plate 89.—The borders at top and bottom of this plate were printed in yellow, green and blue blended into one another—a good example of *the harmony of relative colors—by gradation*. The type form was printed in color No. 34, which is one of the darkest tones of red.

Plate 90.—This plate shows a specimen of map work printed in black and three tints. The tints were made by mixing the colors with magnesia, and were printed over the black. Magnesia makes a transparent tint which is specially suitable for work of this character. The black was printed first; then the blue



tint; then the pink tint, producing a purple tint where it laps the blue; then the yellow tint, producing a green tint where it laps the blue, and a salmon tint where it laps the pink. These tints were made a little stronger than is necessary for map work, for the purpose of showing how plainly the black can be seen through them.





Two-Color Combinations.



THE following list of two-color combinations taken from the colors shown on Plates 1 to 21, inclusive, are in the writer's judgement, either *good*, *very good*, or *excellent*. We first give a list of combinations including red; this is followed by a list including yellow; then a list including blue; then a number of lists including, orange, green, purple, deep blue, rose-lake, lemon-yellow, vermillion, gray, and black, in the order named. Then these are followed by lists including colors 17, 34, 36, 41, 44, 45, 52, 59, 60, 67, 73, 75, 80, 81, 83, 94, 110, 115, 118, 119, 123, 135, 138, 139, 142, 144, and 148, in the order given. The principal color in each list of combinations is given at the head of same.

Red.

Figs. 1 and 2 — good.
 " 1 " 3 — very good.
 " 1 " 5 — " "
 " 1 " 7 — " "
 " 1 " 9 — good.
 " 1 " 11 — very good.
 " 1 " 12 — excellent.
 " 1 " 21 — good.

Figs. 1 and 24 — good.
 " 1 " 32 — very good.
 " 1 " 33 — " "
 " 1 " 34 — good.
 " 1 " 37 — "
 " 1 " 38 — "
 " 1 " 40 — "
 " 1 " 41 — "



341

85 and Copper Bronze

Samples of nine different patterns of Embossing, from one plate made with punches.

Figs. 1 and 45 — very good.

" 1 " 46 — good.

" 1 " 47 — "

" 1 " 49 — "

" 1 " 50 — "

" 1 " 51 — very good.

" 1 " 52 — excellent.

" 1 " 53 — good.

" 1 " 54 — "

" 1 " 57 — excellent.

" 1 " 58 — very good.

" 1 " 60 — " "

" 1 " 63 — " "

" 1 " 67 — " "

" 1 " 68 — good.

" 1 " 70 — "

" 1 " 71 — "

" 1 " 74 — very good.

" 1 " 75 — " "

" 1 " 77 — good.

" 1 " 79 — very good.

" 1 " 80 — " "

" 1 " 83 — excellent.

" 1 " 85 — good.

" 1 " 86 — "

" 1 " 87 — "

" 1 " 90 — "

" 1 " 91 — "

" 1 " 92 — "

Figs. 1 and 101 — very good.

" 1 " 102 — " "

" 1 " 103 — good.

" 1 " 104 — "

" 1 " 108 — very good.

" 1 " 109 — good.

" 1 " 110 — very good.

" 1 " 111 — " "

" 1 " 117 — good.

" 1 " 118 — very good.

" 1 " 119 — excellent.

" 1 " 128 — good.

" 1 " 129 — "

" 1 " 132 — "

" 1 " 142 — very good.

" 1 " 144 — " "

" 1 " 148 — excellent.

" 1 " 149 — very good.

" 1 " 151 — " "

" 1 " 153 — " "

" 1 " 155 — excellent.

" 1 " 158 — very good.

" 1 " 160 — good.

" 1 " 161 — "

" 1 " 164 — very good.

" 1 " 170 — " "

" 1 " 171 — excellent.

" 1 " 172 — very good.

" 1 " 176 — " "

Yellow.

Figs. 2 and 1 — good.

" 2 " 3 — very good.

" 2 " 6 — excellent.

Figs. 2 and 7 — very good.

" 2 " 8 — good.

" 2 " 11 — excellent.

Figs. 2 and 12 — very good.

" 2 " 15 — " "
" 2 " 16 — good.
" 2 " 17 — "
" 2 " 24 — "
" 2 " 26 — "
" 2 " 27 — "
" 2 " 28 — "
" 2 " 31 — "
" 2 " 32 — very good.
" 2 " 33 — good.
" 2 " 34 — "
" 2 " 35 — very good.
" 2 " 36 — " "
" 2 " 37 — " "
" 2 " 42 — good.
" 2 " 43 — "
" 2 " 49 — very good.
" 2 " 50 — good.
" 2 " 51 — "
" 2 " 52 — very good.
" 2 " 53 — good.
" 2 " 57 — very good.
" 2 " 59 — excellent.
" 2 " 60 — very good.
" 2 " 61 — " "
" 2 " 62 — good.
" 2 " 63 — "
" 2 " 64 — "
" 2 " 67 — excellent.
" 2 " 68 — very good.
" 2 " 69 — good.
" 2 " 70 — "
" 2 " 77 — very good.
" 2 " 79 — good.
" 2 " 80 — very good.

Figs. 2 and 81 — very good.

" 2 " 82 — good.
" 2 " 83 — "
" 2 " 84 — very good.
" 2 " 93 — " "
" 2 " 94 — " "
" 2 " 95 — good.
" 2 " 96 — very good.
" 2 " 97 — good.
" 2 " 98 — very good.
" 2 " 99 — good.
" 2 " 100 — excellent.
" 2 " 108 — very good.
" 2 " 109 — good.
" 2 " 110 — "
" 2 " 111 — "
" 2 " 112 — very good.
" 2 " 113 — " "
" 2 " 114 — good.
" 2 " 115 — "
" 2 " 116 — very good.
" 2 " 119 — " "
" 2 " 125 — good.
" 2 " 126 — very good.
" 2 " 127 — good.
" 2 " 130 — "
" 2 " 131 — "
" 2 " 132 — "
" 2 " 135 — excellent.
" 2 " 138 — "
" 2 " 139 — very good.
" 2 " 143 — excellent.
" 2 " 147 — very good.
" 2 " 148 — " "
" 2 " 151 — " "
" 2 " 154 — " "

Figs. 2 and 155 — excellent.
 " 2 " 158 — "
 " 2 " 160 — good.
 " 2 " 166 — excellent.

Figs. 2 and 171 — excellent.
 " 2 " 174 — very good.
 " 2 " 175 — " "
 " 2 " 176 — " "

Blue.

Figs. 3 and 1 — very good.
 " 3 " 2 — " "
 " 3 " 4 — excellent.
 " 3 " 8 — good.
 " 3 " 9 — very good.
 " 3 " 10 — excellent.
 " 3 " 11 — very good.
 " 3 " 12 — good.
 " 3 " 13 — very good.
 " 3 " 14 — good.
 " 3 " 17 — "
 " 3 " 18 — "
 " 3 " 19 — very good.
 " 3 " 20 — " "
 " 3 " 27 — good.
 " 3 " 28 — very good.
 " 3 " 29 — good.
 " 3 " 30 — very good.
 " 3 " 31 — good.
 " 3 " 32 — "
 " 3 " 34 — "
 " 3 " 35 — very good.
 " 3 " 36 — " "
 " 3 " 39 — excellent.
 " 3 " 41 — very good.
 " 3 " 44 — " "
 " 3 " 48 — " "

Figs. 3 and 52 — good.
 " 3 " 55 — "
 " 3 " 56 — very good.
 " 3 " 66 — good.
 " 3 " 71 — "
 " 3 " 72 — "
 " 3 " 73 — very good.
 " 3 " 76 — good.
 " 3 " 77 — very good.
 " 3 " 78 — excellent.
 " 3 " 79 — good.
 " 3 " 80 — very good.
 " 3 " 81 — excellent.
 " 3 " 89 — good.
 " 3 " 107 — "
 " 3 " 113 — "
 " 3 " 115 — "
 " 3 " 116 — very good.
 " 3 " 119 — " "
 " 3 " 120 — good.
 " 3 " 121 — "
 " 3 " 122 — "
 " 3 " 123 — "
 " 3 " 124 — "
 " 3 " 127 — "
 " 3 " 131 — "
 " 3 " 133 — very good.

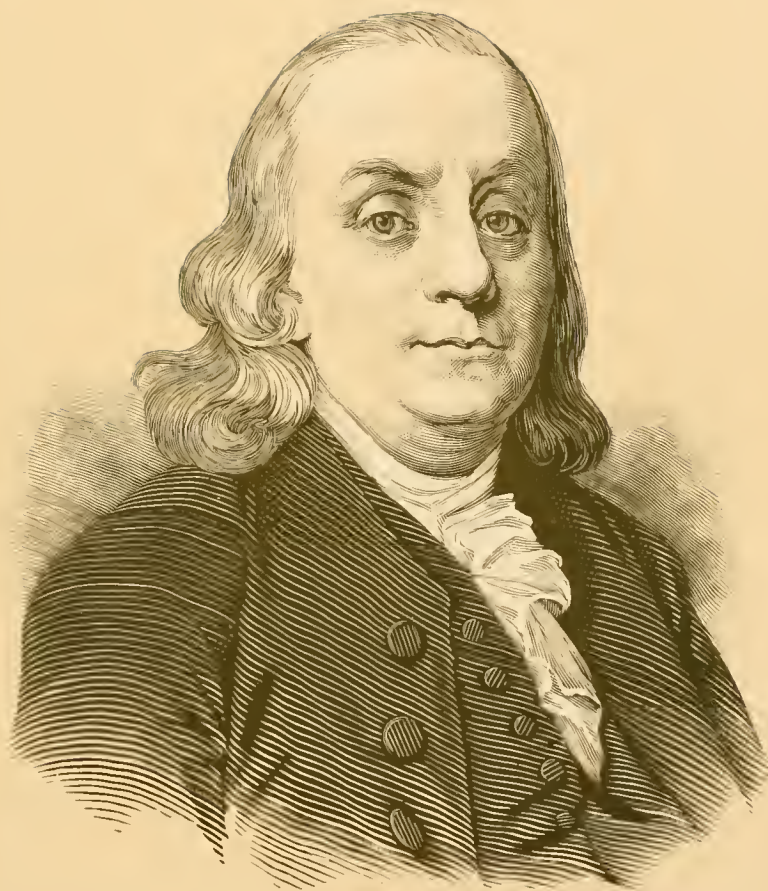
Figs. 3 and 134 — very good.
 " 3 " 135 — " "
 " 3 " 136 — excellent.
 " 3 " 140 — very good.
 " 3 " 145 — " "
 " 3 " 146 — good.
 " 3 " 149 — very good.
 " 3 " 150 — " "
 " 3 " 151 — " "

Figs. 3 and 152 — excellent.
 " 3 " 155 — very good.
 " 3 " 156 — " "
 " 3 " 157 — excellent.
 " 3 " 159 — very good.
 " 3 " 162 — " "
 " 3 " 163 — excellent.
 " 3 " 168 — good.
 " 3 " 169 — very good.

Orange.

Figs. 4 and 3 — excellent.
 " 4 " 6 — very good.
 " 4 " 7 — " "
 " 4 " 11 — " "
 " 4 " 12 — " "
 " 4 " 15 — good.
 " 4 " 24 — "
 " 4 " 37 — very good.
 " 4 " 59 — good.
 " 4 " 60 — very good.
 " 4 " 61 — good.
 " 4 " 64 — "
 " 4 " 67 — very good.
 " 4 " 68 — good.
 " 4 " 70 — "
 " 4 " 77 — "
 " 4 " 79 — very good.
 " 4 " 80 — good.
 " 4 " 81 — "
 " 4 " 83 — "
 " 4 " 93 — very good.
 " 4 " 97 — good.
 " 4 " 98 — "

Figs. 4 and 99 — very good.
 " 4 " 100 — good.
 " 4 " 108 — very good.
 " 4 " 109 — good.
 " 4 " 110 — very good.
 " 4 " 111 — " "
 " 4 " 125 — excellent.
 " 4 " 126 — very good.
 " 4 " 127 — good.
 " 4 " 130 — "
 " 4 " 132 — "
 " 4 " 135 — very good.
 " 4 " 138 — good.
 " 4 " 139 — very good.
 " 4 " 143 — good.
 " 4 " 148 — very good.
 " 4 " 151 — excellent.
 " 4 " 152 — very good.
 " 4 " 155 — excellent.
 " 4 " 160 — good.
 " 4 " 171 — very good.
 " 4 " 174 — " "
 " 4 " 176 — " "



342
80 and 163

Specimen page, showing the use of Embossing Punches.
The plate was made with four different punches.

Green.

Figs. 5 and 1 — very good.
 " 5 " 6 — excellent.
 " 5 " 8 — very good.
 " 5 " 10 — " "
 " 5 " 11 — good.
 " 5 " 12 — "
 " 5 " 16 — very good.
 " 5 " 17 — excellent.
 " 5 " 18 — very good.
 " 5 " 19 — good.
 " 5 " 26 — "
 " 5 " 27 — very good.
 " 5 " 28 — " "
 " 5 " 30 — good.
 " 5 " 31 — very good.
 " 5 " 32 — good.
 " 5 " 33 — "
 " 5 " 34 — very good.
 " 5 " 35 — " "
 " 5 " 36 — " "
 " 5 " 42 — good.
 " 5 " 59 — very good.
 " 5 " 61 — " "
 " 5 " 62 — excellent.
 " 5 " 73 — very good.
 " 5 " 76 — good.
 " 5 " 80 — very good.
 " 5 " 81 — " "
 " 5 " 94 — excellent.

Figs. 5 and 95 — excellent.
 " 5 " 96 — very good.
 " 5 " 97 — good.
 " 5 " 98 — very good.
 " 5 " 100 — " "
 " 5 " 112 — good.
 " 5 " 113 — "
 " 5 " 114 — "
 " 5 " 115 — very good.
 " 5 " 116 — excellent.
 " 5 " 123 — very good.
 " 5 " 124 — good.
 " 5 " 127 — "
 " 5 " 131 — "
 " 5 " 133 — "
 " 5 " 138 — very good.
 " 5 " 140 — good.
 " 5 " 141 — "
 " 5 " 143 — "
 " 5 " 147 — very good.
 " 5 " 149 — " "
 " 5 " 153 — " "
 " 5 " 154 — excellent.
 " 5 " 156 — very good.
 " 5 " 157 — " "
 " 5 " 163 — " "
 " 5 " 166 — " "
 " 5 " 168 — good.
 " 5 " 174 — "

Purple.

Figs. 6 and 2 — excellent.
 " 6 " 4 — very good.

Figs. 6 and 5 — excellent.
 " 6 " 9 — very good.

Figs. 6 and 11 — good.

" 6 " 14 — "
" 6 " 21 — very good.
" 6 " 38 — good.
" 6 " 39 — "
" 6 " 40 — very good.
" 6 " 41 — " "
" 6 " 45 — good.
" 6 " 46 — excellent.
" 6 " 47 — good.
" 6 " 49 — "
" 6 " 50 — very good.
" 6 " 51 — " "
" 6 " 52 — " "
" 6 " 54 — good.
" 6 " 58 — very good.
" 6 " 71 — " "
" 6 " 74 — good.
" 6 " 75 — very good.
" 6 " 85 — " "
" 6 " 86 — good.
" 6 " 87 — "
" 6 " 90 — "
" 6 " 91 — "

Figs. 6 and 92 — good.

" 6 " 101 — "
" 6 " 102 — very good.
" 6 " 103 — good.
" 6 " 104 — "
" 6 " 117 — "
" 6 " 118 — "
" 6 " 119 — "
" 6 " 128 — "
" 6 " 129 — "
" 6 " 134 — "
" 6 " 136 — "
" 6 " 137 — "
" 6 " 142 — very good.
" 6 " 144 — good.
" 6 " 150 — very good.
" 6 " 153 — excellent.
" 6 " 154 — very good.
" 6 " 159 — " "
" 6 " 161 — " "
" 6 " 162 — good.
" 6 " 164 — "
" 6 " 170 — very good.
" 6 " 172 — " "

Deep Blue.

Figs. 7 and 1 — very good.

" 7 " 2 — " "
" 7 " 4 — " "
" 7 " 8 — good.
" 7 " 9 — "
" 7 " 10 — very good.
" 7 " 11 — good.
" 7 " 13 — very good.
" 7 " 14 — good.

Figs. 7 and 17 — good.

" 7 " 18 — very good.
" 7 " 19 — " "
" 7 " 20 — " "
" 7 " 23 — good.
" 7 " 27 — "
" 7 " 28 — very good.
" 7 " 29 — " "
" 7 " 30 — " "

Figs. 7 and	31	— very good.
" 7 "	32	— good.
" 7 "	35	— "
" 7 "	36	— very good.
" 7 "	39	— " "
" 7 "	44	— good.
" 7 "	48	— very good.
" 7 "	52	— good.
" 7 "	55	— "
" 7 "	56	— very good.
" 7 "	66	— good.
" 7 "	72	— "
" 7 "	73	— very good.
" 7 "	76	— " "
" 7 "	78	— good.
" 7 "	81	— very good.
" 7 "	89	— good.
" 7 "	107	— "
" 7 "	120	— "
" 7 "	124	— "
" 7 "	133	— very good.

Figs. 7 and	134	— very good.
" 7 "	135	— " "
" 7 "	136	— excellent.
" 7 "	139	— very good.
" 7 "	140	— " "
" 7 "	141	— good.
" 7 "	145	— excellent.
" 7 "	146	— good.
" 7 "	149	— very good.
" 7 "	150	— good.
" 7 "	151	— very good.
" 7 "	152	— " "
" 7 "	155	— " "
" 7 "	157	— excellent.
" 7 "	159	— good.
" 7 "	162	— "
" 7 "	163	— very good.
" 7 "	165	— good.
" 7 "	168	— "
" 7 "	169	— "
" 7 "	176	— "

Rose-lake.

Figs. 8 and	2	— good.
" 8 "	3	— "
" 8 "	5	— very good.
" 8 "	7	— good.
" 8 "	9	— "
" 8 "	11	— "
" 8 "	21	— "
" 8 "	24	— "
" 8 "	38	— "
" 8 "	40	— "
" 8 "	41	— "

Figs. 8 and	45	— very good.
" 8 "	46	— good.
" 8 "	47	— "
" 8 "	49	— "
" 8 "	50	— "
" 8 "	51	— very good.
" 8 "	52	— good.
" 8 "	54	— "
" 8 "	58	— very good.
" 8 "	63	— good.
" 8 "	71	— "

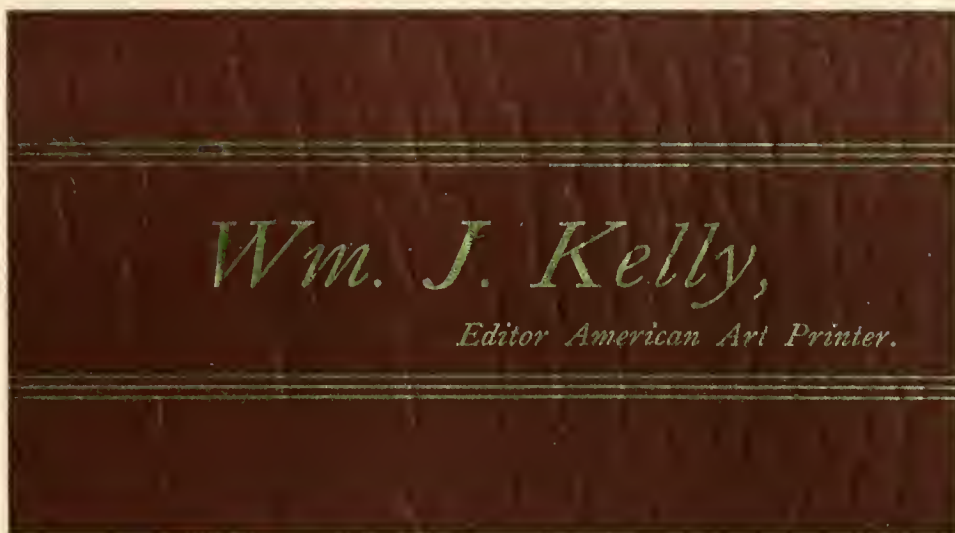
Figs. 8 and 74—very good.
 " 8 " 75— " "
 " 8 " 85—good.
 " 8 " 86— "
 " 8 " 87— "
 " 8 " 90— "
 " 8 " 91— "
 " 8 " 92— "
 " 8 " 102—very good.
 " 8 " 103—good.
 " 8 " 117— "
 " 8 " 118—very good.

Figs. 8 and 119—very good.
 " 8 " 129—good.
 " 8 " 144— "
 " 8 " 148— "
 " 8 " 151—very good.
 " 8 " 153— " "
 " 8 " 155— " "
 " 8 " 161—good.
 " 8 " 164—very good.
 " 8 " 170— " "
 " 8 " 171—excellent.
 " 8 " 176—very good.

Lemon-yellow.

Figs. 9 and 1—good.
 " 9 " 3—very good.
 " 9 " 6— " "
 " 9 " 7—good.
 " 9 " 8— "
 " 9 " 11—very good.
 " 9 " 12—good.
 " 9 " 15— "
 " 9 " 16—very good.
 " 9 " 17—good.
 " 9 " 24— "
 " 9 " 26— "
 " 9 " 27—very good.
 " 9 " 28—good.
 " 9 " 30— "
 " 9 " 31—very good.
 " 9 " 32— " "
 " 9 " 33—good.
 " 9 " 34— "
 " 9 " 35— "

Figs. 9 and 36—very good.
 " 9 " 37— " "
 " 9 " 42—good.
 " 9 " 49—very good.
 " 9 " 50—good.
 " 9 " 51— "
 " 9 " 52—very good.
 " 9 " 53—good.
 " 9 " 57—very good.
 " 9 " 59—excellent.
 " 9 " 60—very good.
 " 9 " 61— " "
 " 9 " 62—good.
 " 9 " 63— "
 " 9 " 64— "
 " 9 " 67—very good.
 " 9 " 68— " "
 " 9 " 69—good.
 " 9 " 70— "
 " 9 " 71—very good.



343

Color 115



344

Color 165

Specimens of Embossing in imitation of the right and wrong sides of Leather Paper.

Figs. 9 and	77	— very good.
" 9 "	79	— good.
" 9 "	80	— very good.
" 9 "	81	— " "
" 9 "	82	— good.
" 9 "	84	— very good.
" 9 "	93	— " "
" 9 "	94	— " "
" 9 "	95	— " "
" 9 "	96	— " "
" 9 "	97	— good.
" 9 "	98	— very good.
" 9 "	99	— good.
" 9 "	100	— excellent.
" 9 "	108	— very good.
" 9 "	109	— good.
" 9 "	110	— " "
" 9 "	111	— very good.
" 9 "	112	— good.
" 9 "	113	— very good.
" 9 "	114	— good.
" 9 "	115	— very good.

Figs. 9 and	116	— very good.
" 9 "	119	— " "
" 9 "	125	— good.
" 9 "	126	— " "
" 9 "	127	— " "
" 9 "	130	— " "
" 9 "	131	— " "
" 9 "	132	— " "
" 9 "	135	— excellent.
" 9 "	138	— " "
" 9 "	139	— very good.
" 9 "	143	— excellent.
" 9 "	147	— very good.
" 9 "	148	— " "
" 9 "	151	— " "
" 9 "	154	— " "
" 9 "	155	— excellent.
" 9 "	158	— very good.
" 9 "	160	— " "
" 9 "	166	— " "
" 9 "	171	— " "
" 9 "	174	— " "

Vermilion.

Figs. 10 and	3	— excellent.
" 10 "	5	— very good.
" 10 "	7	— " "
" 10 "	11	— " "
" 10 "	12	— " "
" 10 "	24	— good.
" 10 "	32	— " "
" 10 "	37	— very good.
" 10 "	38	— good.
" 10 "	45	— very good.
" 10 "	49	— good.

Figs. 10 and	50	— good.
" 10 "	51	— " "
" 10 "	57	— very good.
" 10 "	58	— good.
" 10 "	60	— very good.
" 10 "	63	— good.
" 10 "	67	— very good.
" 10 "	68	— good.
" 10 "	69	— " "
" 10 "	70	— " "
" 10 "	74	— " "

Figs.	10	and	75	— good.
"	10	"	79	— "
"	10	"	80	— "
"	10	"	83	— very good.
"	10	"	85	— good.
"	10	"	87	— "
"	10	"	90	— "
"	10	"	91	— "
"	10	"	92	— very good.
"	10	"	101	— " "
"	10	"	102	— " "
"	10	"	108	— good.
"	10	"	109	— "
"	10	"	110	— very good.
"	10	"	111	— " "
"	10	"	118	— good.
"	10	"	119	— "
"	10	"	128	— "

Figs.	10	and	129	— good.
"	10	"	135	— "
"	10	"	137	— "
"	10	"	142	— very good.
"	10	"	144	— " "
"	10	"	148	— excellent.
"	10	"	151	— very good.
"	10	"	153	— " "
"	10	"	155	— excellent.
"	10	"	157	— very good.
"	10	"	158	— " "
"	10	"	160	— good.
"	10	"	161	— very good.
"	10	"	164	— good.
"	10	"	170	— excellent.
"	10	"	171	— "
"	10	"	172	— very good.
"	10	"	176	— " "

Gray.

Figs.	11	and	1	— very good.
"	11	"	2	— excellent.
"	11	"	3	— very good.
"	11	"	4	— " "
"	11	"	5	— good.
"	11	"	6	— "
"	11	"	8	— "
"	11	"	9	— very good.
"	11	"	10	— " "
"	11	"	13	— " "
"	11	"	14	— " "
"	11	"	18	— good.
"	11	"	19	— very good.
"	11	"	20	— " "

Figs.	11	and	28	— good.
"	11	"	29	— "
"	11	"	30	— excellent.
"	11	"	37	— good.
"	11	"	39	— excellent.
"	11	"	40	— very good.
"	11	"	41	— " "
"	11	"	44	— good.
"	11	"	46	— very good.
"	11	"	47	— " "
"	11	"	48	— " "
"	11	"	56	— " "
"	11	"	59	— good.
"	11	"	60	— "

Figs.	11	and	62	—good.
"	11	"	71	— "
"	11	"	73	— "
"	11	"	76	—very good.
"	11	"	78	—good.
"	11	"	81	— "
"	11	"	83	— "
"	11	"	85	— "
"	11	"	86	— "
"	11	"	95	— "
"	11	"	102	— "
"	11	"	103	— "
"	11	"	104	— "
"	11	"	133	— "
"	11	"	134	— "
"	11	"	135	—very good.
"	11	"	136	—good.
"	11	"	137	— "
"	11	"	138	— "

Figs.	11	and	139	— good.
"	11	"	140	— "
"	11	"	143	— "
"	11	"	145	— "
"	11	"	147	— "
"	11	"	148	— "
"	11	"	149	—very good.
"	11	"	150	— excellent.
"	11	"	151	—very good.
"	11	"	152	— excellent.
"	11	"	153	—very good.
"	11	"	154	— " "
"	11	"	155	— " "
"	11	"	156	— " "
"	11	"	157	— excellent.
"	11	"	159	— "
"	11	"	162	— "
"	11	"	163	— "
"	11	"	169	—very good.

Black.

Figs.	12	and	1	— excellent.
"	12	"	2	—very good.
"	12	"	3	—good.
"	12	"	4	—very good.
"	12	"	5	—good.
"	12	"	9	— "
"	12	"	10	—very good.
"	12	"	13	—good.
"	12	"	14	— "
"	12	"	19	—very good.
"	12	"	20	— " "
"	12	"	29	— " "
"	12	"	30	— excellent.

Figs.	12	and	39	—very good.
"	12	"	40	—good.
"	12	"	41	— "
"	12	"	46	— "
"	12	"	47	— "
"	12	"	48	—very good.
"	12	"	56	—good.
"	12	"	73	—very good.
"	12	"	76	—good.
"	12	"	81	— "
"	12	"	85	— "
"	12	"	133	— "
"	12	"	135	—very good.

Figs. 12 and 137—good.
 “ 12 “ 138— “
 “ 12 “ 139— “
 “ 12 “ 145— “
 “ 12 “ 148— “
 “ 12 “ 149—very good.

Figs. 12 and 150—good.
 “ 12 “ 152— “
 “ 12 “ 157—very good.
 “ 12 “ 159—good.
 “ 12 “ 162— “
 “ 12 “ 163—very good.

Color No. 17.

Figs. 17 and 2—good.
 “ 17 “ 3— “
 “ 17 “ 5—excellent.
 “ 17 “ 9—good.
 “ 17 “ 15— “
 “ 17 “ 21— “
 “ 17 “ 38— “
 “ 17 “ 40—excellent.
 “ 17 “ 41—very good.
 “ 17 “ 44—good.
 “ 17 “ 46—excellent.
 “ 17 “ 47— “
 “ 17 “ 49—very good.
 “ 17 “ 51—good.
 “ 17 “ 52—very good.
 “ 17 “ 55—good.
 “ 17 “ 57—very good.
 “ 17 “ 58— “ “
 “ 17 “ 60—good.
 “ 17 “ 63— “
 “ 17 “ 67—very good.
 “ 17 “ 68— “ “
 “ 17 “ 71— “ “
 “ 17 “ 75— “ “
 “ 17 “ 81—good.
 “ 17 “ 83—very good.

Figs. 17 and 85—excellent.
 “ 17 “ 86—good.
 “ 17 “ 87— “
 “ 17 “ 90— “
 “ 17 “ 93— “
 “ 17 “ 101— “
 “ 17 “ 102— “
 “ 17 “ 103— “
 “ 17 “ 104— “
 “ 17 “ 108—very good.
 “ 17 “ 117—good.
 “ 17 “ 119— “
 “ 17 “ 135—excellent.
 “ 17 “ 137—very good.
 “ 17 “ 139—excellent.
 “ 17 “ 142—very good.
 “ 17 “ 144—excellent.
 “ 17 “ 148— “
 “ 17 “ 151— “
 “ 17 “ 152—very good.
 “ 17 “ 153— “ “
 “ 17 “ 155—excellent.
 “ 17 “ 157—very good.
 “ 17 “ 160—good.
 “ 17 “ 161— “
 “ 17 “ 164—very good.



The Dark Tones
of
ORANGE

Running from Orange towards

BLACK



Figs. 17 and 169 — very good.
 " 17 " 170 — excellent.

Figs. 17 and 171 — excellent.
 " 17 " 176 — very good.

Color No. 34.

Figs. 34 and 1 — good.
 " 34 " 2 — "
 " 34 " 3 — "
 " 34 " 5 — very good.
 " 34 " 9 — good.
 " 34 " 37 — "
 " 34 " 38 — "
 " 34 " 39 — "
 " 34 " 40 — very good.
 " 34 " 41 — good.
 " 34 " 46 — very good.
 " 34 " 47 — " "
 " 34 " 49 — good.
 " 34 " 52 — "
 " 34 " 57 — excellent.
 " 34 " 58 — very good.
 " 34 " 63 — " "
 " 34 " 67 — good.
 " 34 " 68 — "
 " 34 " 71 — very good.
 " 34 " 75 — good.
 " 34 " 83 — excellent.
 " 34 " 85 — "
 " 34 " 86 — good.

Figs. 34 and 87 — "
 " 34 " 90 — "
 " 34 " 102 — very good.
 " 34 " 103 — good.
 " 34 " 104 — "
 " 34 " 108 — "
 " 34 " 117 — "
 " 34 " 119 — very good.
 " 34 " 125 — good.
 " 34 " 135 — very good.
 " 34 " 137 — " "
 " 34 " 139 — excellent.
 " 34 " 142 — very good.
 " 34 " 144 — " "
 " 34 " 148 — excellent.
 " 34 " 149 — very good.
 " 34 " 151 — " "
 " 34 " 153 — " "
 " 34 " 155 — excellent.
 " 34 " 160 — good.
 " 34 " 161 — very good.
 " 34 " 170 — " "
 " 34 " 171 — excellent.
 " 34 " 176 — very good.

Color No. 36.

Figs. 36 and 2 — very good.
 " 36 " 3 — " "

Figs. 36 and 5 — very good.
 " 36 " 7 — " "

Figs. 36 " 9—very good.
 " 36 " 21—good.
 " 36 " 32— "
 " 36 " 37— "
 " 36 " 38— "
 " 36 " 39— "
 " 36 " 40—excellent.
 " 36 " 41—very good.
 " 36 " 45— " "
 " 36 " 46—excellent.
 " 36 " 47—very good.
 " 36 " 49—good.
 " 36 " 52—excellent.
 " 36 " 57— "
 " 36 " 58—very good.
 " 36 " 63— " "
 " 36 " 67— " "
 " 36 " 68— " "
 " 36 " 71—very good.
 " 36 " 74—good.
 " 36 " 75— "
 " 36 " 80—very good.
 " 36 " 83— " "
 " 36 " 85—excellent.
 " 36 " 86—good.

Figs. 36 and 87—good.
 " 36 " 90— "
 " 36 " 102—very good.
 " 36 " 103— " "
 " 36 " 104—good.
 " 36 " 108—very good.
 " 36 " 117—good.
 " 36 " 119—very good.
 " 36 " 125—good.
 " 36 " 135—excellent.
 " 36 " 137—very good.
 " 36 " 139— " "
 " 36 " 142— " "
 " 36 " 144— " "
 " 36 " 148—excellent.
 " 36 " 149—very good.
 " 36 " 151— " "
 " 36 " 153— " "
 " 36 " 155—excellent.
 " 36 " 160—good.
 " 36 " 161—very good.
 " 36 " 170— " "
 " 36 " 171—excellent.
 " 36 " 172—very good.
 " 36 " 176— " "

Color No. 41.

Figs. 41 and 1—good.
 " 41 " 3—very good.
 " 41 " 6— " "
 " 41 " 7—good.
 " 41 " 10— "
 " 41 " 11—very good.

Figs. 41 and 12—good.
 " 41 " 15— "
 " 41 " 16— "
 " 41 " 17—very good.
 " 41 " 18—good.
 " 41 " 23— "

Figs. 4I and 24 — good.
 “ 4I “ 27 — “
 “ 4I “ 31 — very good.
 “ 4I “ 32 — “ “
 “ 4I “ 35 — good.
 “ 4I “ 36 — very good.
 “ 4I “ 37 — “ “
 “ 4I “ 42 — good.
 “ 4I “ 49 — “
 “ 4I “ 55 — “
 “ 4I “ 57 — “
 “ 4I “ 59 — very good.
 “ 4I “ 60 — good.
 “ 4I “ 61 — very good.
 “ 4I “ 62 — good.
 “ 4I “ 63 — “
 “ 4I “ 64 — “
 “ 4I “ 67 — very good.
 “ 4I “ 68 — good.
 “ 4I “ 70 — “
 “ 4I “ 77 — “
 “ 4I “ 80 — “
 “ 4I “ 82 — “
 “ 4I “ 83 — very good.
 “ 4I “ 84 — good.
 “ 4I “ 93 — very good.
 “ 4I “ 94 — “ “
 “ 4I “ 95 — good.
 “ 4I “ 96 — “
 “ 4I “ 98 — “
 “ 4I “ 99 — “
 “ 4I “ 100 — very good.
 “ 4I “ 107 — good.
 “ 4I “ 108 — very good.
 “ 4I “ 110 — good.
 “ 4I “ 111 — very good.

Figs. 4I and 112 — good.
 “ 4I “ 113 — very good.
 “ 4I “ 115 — good.
 “ 4I “ 116 — very good.
 “ 4I “ 117 — good.
 “ 4I “ 118 — “
 “ 4I “ 119 — “
 “ 4I “ 121 — very good.
 “ 4I “ 123 — good.
 “ 4I “ 124 — “
 “ 4I “ 125 — very good.
 “ 4I “ 126 — “ “
 “ 4I “ 131 — good.
 “ 4I “ 135 — excellent.
 “ 4I “ 138 — “
 “ 4I “ 139 — “
 “ 4I “ 140 — good.
 “ 4I “ 142 — excellent.
 “ 4I “ 143 — “
 “ 4I “ 147 — very good.
 “ 4I “ 148 — excellent.
 “ 4I “ 149 — good.
 “ 4I “ 151 — excellent.
 “ 4I “ 154 — “
 “ 4I “ 155 — “
 “ 4I “ 156 — good.
 “ 4I “ 157 — “
 “ 4I “ 160 — “
 “ 4I “ 161 — very good.
 “ 4I “ 166 — good.
 “ 4I “ 167 — “
 “ 4I “ 171 — excellent.
 “ 4I “ 174 — very good.
 “ 4I “ 175 — good.
 “ 4I “ 176 — very good.
 “ 4I “ 177 — good.

Color No. 44.

Figs. 44 and 3 — very good.
 " 44 " 5 — good.
 " 44 " 7 — "
 " 44 " 11 — "
 " 44 " 12 — "
 " 44 " 15 — "
 " 44 " 16 — "
 " 44 " 21 — very good.
 " 44 " 24 — good.
 " 44 " 26 — "
 " 44 " 27 — "
 " 44 " 35 — "
 " 44 " 36 — "
 " 44 " 37 — excellent.
 " 44 " 46 — good.
 " 44 " 47 — "
 " 44 " 49 — very good.
 " 44 " 51 — good.
 " 44 " 52 — "
 " 44 " 53 — very good.
 " 44 " 54 — good.
 " 44 " 57 — excellent.
 " 44 " 58 — very good.
 " 44 " 59 — good.
 " 44 " 60 — excellent.
 " 44 " 61 — good.
 " 44 " 63 — excellent.
 " 44 " 64 — good.
 " 44 " 67 — excellent.
 " 44 " 68 — good.
 " 44 " 70 — very good.
 " 44 " 74 — good.
 " 44 " 75 — very good.
 " 44 " 80 — good.

Figs. 44 and 82 — good.
 " 44 " 83 — excellent.
 " 44 " 87 — very good.
 " 44 " 90 — " "
 " 44 " 92 — good.
 " 44 " 93 — very good.
 " 44 " 99 — good.
 " 44 " 100 — "
 " 44 " 101 — very good.
 " 44 " 108 — excellent.
 " 44 " 111 — good.
 " 44 " 112 — "
 " 44 " 117 — very good.
 " 44 " 119 — " "
 " 44 " 125 — " "
 " 44 " 126 — good.
 " 44 " 135 — excellent.
 " 44 " 137 — good.
 " 44 " 138 — "
 " 44 " 139 — excellent.
 " 44 " 142 — "
 " 44 " 143 — very good.
 " 44 " 144 — " "
 " 44 " 148 — excellent.
 " 44 " 151 — very good.
 " 44 " 153 — good.
 " 44 " 154 — "
 " 44 " 155 — excellent.
 " 44 " 160 — good.
 " 44 " 161 — very good.
 " 44 " 171 — excellent.
 " 44 " 174 — good.
 " 44 " 175 — "
 " 44 " 176 — very good.

❖ SPECIMEN PAGE ❖

Showing the different effects produced by printing the colors
Red, Blue, Yellow, Gray, and Black, in lines
and solids over Gold Bronze printed in lines
and solids.



Gold.



Red.



Blue.



Yellow.



Gray.



Black.



Red on Gold.



Blue on Gold.



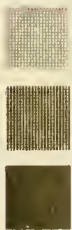
Yellow on Gold.



Gray on Gold.



Gray on Yellow on Gold.



Black on Gold.



Black on Yellow on Gold.



Red lines on Gold solid.



Blue lines on Gold solid.



Yellow lines on Gold solid.



Gray lines on Gold solid.



Black lines on Gold solid.



Red and Blue lines on Gold solid.



Red and Yellow lines on Gold solid.



Red and Gray lines on Gold solid.



Red and Black lines on Gold solid.



Blue and Yellow lines on Gold solid.



Blue and Gray lines on Gold solid.



Blue and Black lines on Gold solid.



Yellow and Gray lines on Gold solid.

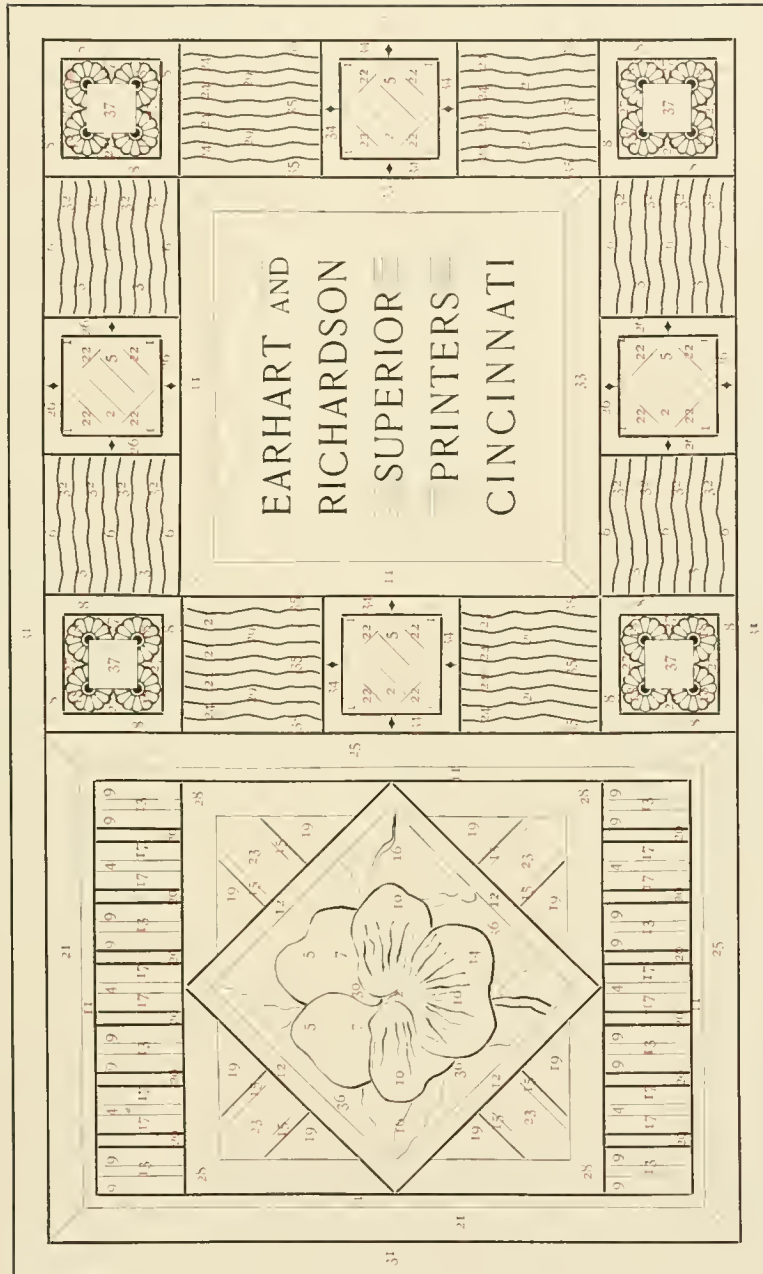


Yellow and Black lines on Gold solid.



347

Card showing thirty-seven colors produced by six impressions. The colors were printed in the following order: Gold, Red, Blue, Yellow, Gray and Black. (See Plate 64).



348 — KEY FORM OF PLATE 63.

- | | | |
|-----------------------------|--|--|
| 1.—Gold. | 20.—Gray lines. | 31.—Gray lines on Blue lines on Red lines on Gold lines. |
| 2.—Red. | 21.—Gray lines. | 32.—Gray on Yellow. |
| 3.—Red on Gold. | 22.—Gray on Gold. | 33.—Gray solid on Yellow lines. |
| 4.—Red lines on Gold lines. | 23.—Gray lines on Gold lines. | 34.—Gray lines on Yellow lines. |
| 5.—Blue. | 24.—Gray on Red. | 35.—Gray on Yellow on Gold. |
| 6.—Blue on Gold. | 25.—Gray solid on Red lines. | 36.—Gray on Yellow on Blue. |
| 7.—Blue on Red. | 26.—Gray lines on Red lines. | 37.—Gray lines on Yellow lines on Red lines on Gold lines. |
| 8.—Blue lines on Red lines. | 27.—Gray on Blue. | |
| 9.—Blue on Red on Gold. | 28.—Gray lines on Blue lines. | |
| 10.—Yellow lines. | 29.—Gray on Blue on Gold. | |
| 11.—Yellow lines. | 30.—Gray on Blue on Red. | |
| | 12.—Yellow lines on Gold. | |
| | 13.—Yellow lines on Gold lines. | |
| | 14.—Yellow on Red. | |
| | 15.—Yellow on Red on Gold. | |
| | 16.—Yellow on Blue. | |
| | 17.—Yellow lines on Blue lines. | |
| | 18.—Yellow lines on Gold lines. | |
| | 19.—Yellow lines on Blue lines on Red lines on Gold lines. | |

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Continued on page 1000, Franklin Machine and Printing Co.



351
Pale Gold, 171, 157, 158 and 35

Combination of Gold, Three Tints and Photo Brown.



352

Red in contrast with the different tones of Black.



353

Yellow in contrast with the different tones of Black.



354

Gray in contrast with Blue and its light tones.



355

Gray in contrast with Red and its light tones.



356

Gray in contrast with the different tones of Black.

Color No. 45.

Figs. 45 and 1 — very good.	Figs. 45 and 76 — very good.
" 45 " 2 — good.	" 45 " 78 — good.
" 45 " 6 — very good.	" 45 " 81 — very good.
" 45 " 8 — good.	" 45 " 84 — good.
" 45 " 10 — very good.	" 45 " 89 — "
" 45 " 13 — good.	" 45 " 93 — "
" 45 " 18 — "	" 45 " 94 — very good.
" 45 " 19 — very good.	" 45 " 95 — " "
" 45 " 20 — good.	" 45 " 96 — good.
" 45 " 28 — "	" 45 " 100 — "
" 45 " 29 — "	" 45 " 107 — "
" 45 " 30 — excellent.	" 45 " 112 — "
" 45 " 31 — good.	" 45 " 116 — "
" 45 " 36 — "	" 45 " 120 — "
" 45 " 40 — "	" 45 " 124 — "
" 45 " 41 — "	" 45 " 133 — "
" 45 " 42 — "	" 45 " 138 — excellent.
" 45 " 44 — "	" 45 " 140 — very good.
" 45 " 46 — "	" 45 " 141 — good.
" 45 " 47 — "	" 45 " 143 — very good.
" 45 " 48 — "	" 45 " 145 — good.
" 45 " 59 — very good.	" 45 " 147 — very good.
" 45 " 61 — good.	" 45 " 149 — " "
" 45 " 62 — "	" 45 " 154 — excellent.
" 45 " 66 — "	" 45 " 156 — very good.
" 45 " 72 — "	" 45 " 157 — " "
" 45 " 73 — excellent.	" 45 " 166 — " "

Color No. 52.

Figs. 52 and 1 — good.	Figs. 52 and 3 — good.
" 52 " 2 — very good.	" 52 " 6 — very good.

Figs. 52 and 9—very good.
 " 52 " 10—good.
 " 52 " 11— "
 " 52 " 13— "
 " 52 " 18—very good.
 " 52 " 19—good.
 " 52 " 20— "
 " 52 " 23— "
 " 52 " 27— "
 " 52 " 28— "
 " 52 " 29— "
 " 52 " 30— "
 " 52 " 31— "
 " 52 " 35— "
 " 52 " 36—excellent.
 " 52 " 37—very good.
 " 52 " 40—good.
 " 52 " 41— "
 " 52 " 42— "
 " 52 " 44— "
 " 52 " 48—very good.
 " 52 " 57— " "
 " 52 " 58—good.
 " 52 " 59—very good.
 " 52 " 60— " "
 " 52 " 61— " "
 " 52 " 63— " "
 " 52 " 64—good.
 " 52 " 65— "
 " 52 " 66— "
 " 52 " 67—very good.
 " 52 " 68—good.
 " 52 " 73—very good.
 " 52 " 76—good.
 " 52 " 82— "
 " 52 " 83—excellent.

Figs. 52 and 84—good.
 " 52 " 85— "
 " 52 " 89— "
 " 52 " 93— "
 " 52 " 94— "
 " 52 " 95— "
 " 52 " 96— "
 " 52 " 98— "
 " 52 " 100— "
 " 52 " 107— "
 " 52 " 108— "
 " 52 " 112— "
 " 52 " 115—very good.
 " 52 " 116— " "
 " 52 " 120—good.
 " 52 " 121— "
 " 52 " 123—very good.
 " 52 " 124—good.
 " 52 " 125— "
 " 52 " 126— "
 " 52 " 135—very good.
 " 52 " 137— " "
 " 52 " 138— " "
 " 52 " 139—excellent.
 " 52 " 140—very good.
 " 52 " 142— " "
 " 52 " 143— " "
 " 52 " 144—good.
 " 52 " 148—very good.
 " 52 " 149— " "
 " 52 " 151— " "
 " 52 " 154— " "
 " 52 " 155—excellent.
 " 52 " 156—good.
 " 52 " 157— "
 " 52 " 171— "

Color No. 59.

Figs.	59	and	2	—	excellent.
"	59	"	4	—	good.
"	59	"	5	—	very good.
"	59	"	9	—	excellent.
"	59	"	11	—	good.
"	59	"	14	—	"
"	59	"	21	—	"
"	59	"	38	—	"
"	59	"	39	—	"
"	59	"	40	—	excellent.
"	59	"	41	—	very good.
"	59	"	45	—	" "
"	59	"	46	—	" "
"	59	"	47	—	excellent.
"	59	"	49	—	good.
"	59	"	52	—	very good.
"	59	"	56	—	good.
"	59	"	57	—	"
"	59	"	58	—	very good.
"	59	"	71	—	good.
"	59	"	75	—	"
"	59	"	83	—	"
"	59	"	85	—	very good.

Figs.	59	and	86	—	good.
"	59	"	87	—	"
"	59	"	101	—	"
"	59	"	102	—	very good.
"	59	"	103	—	" "
"	59	"	104	—	good.
"	59	"	117	—	"
"	59	"	118	—	excellent.
"	59	"	119	—	very good.
"	59	"	129	—	good.
"	59	"	134	—	"
"	59	"	136	—	"
"	59	"	137	—	very good.
"	59	"	142	—	good.
"	59	"	144	—	"
"	59	"	148	—	"
"	59	"	150	—	very good.
"	59	"	153	—	" "
"	59	"	159	—	" "
"	59	"	162	—	" "
"	59	"	166	—	" "
"	59	"	170	—	" "
"	59	"	172	—	" "

Color No. 60.

Figs.	60	and	1	—	very good.
"	60	"	2	—	" "
"	60	"	4	—	" "
"	60	"	8	—	good.
"	60	"	9	—	very good.
"	60	"	10	—	" "
"	60	"	11	—	good.

Figs.	60	and	13	—	very good.
"	60	"	14	—	" "
"	60	"	18	—	good.
"	60	"	19	—	very good.
"	60	"	20	—	excellent.
"	60	"	28	—	good.
"	60	"	29	—	"

Figs.	60 and	30—very good.
"	60 "	31—good.
"	60 "	36— "
"	60 "	39—excellent.
"	60 "	41—good.
"	60 "	44—excellent.
"	60 "	48—very good.
"	60 "	49—good.
"	60 "	52— "
"	60 "	56— "
"	60 "	66— "
"	60 "	72— "
"	60 "	73—very good.
"	60 "	76—good.
"	60 "	78— "
"	60 "	81—very good.
"	60 "	89—good.
"	60 "	107— "
"	60 "	119—very good.

Figs.	60 and	123—very good.
"	60 "	133—good.
"	60 "	134—very good.
"	60 "	135— " "
"	60 "	136—excellent.
"	60 "	139—very good.
"	60 "	140—good.
"	60 "	141— "
"	60 "	145— "
"	60 "	149—very good.
"	60 "	150— " "
"	60 "	151— " "
"	60 "	152— " "
"	60 "	155— " "
"	60 "	157—excellent.
"	60 "	159—very good.
"	60 "	162— " "
"	60 "	163—excellent.
"	60 "	169—very good.

Color No. 67.

Figs.	67 and	1—very good.
"	67 "	2—excellent.
"	67 "	4—very good.
"	67 "	9— " "
"	67 "	10— " "
"	67 "	13—good.
"	67 "	14—excellent.
"	67 "	18—good.
"	67 "	19— "
"	67 "	20—very good.
"	67 "	29—good.
"	67 "	30— "
"	67 "	36—very good.

Figs.	67 and	39—good.
"	67 "	41—very good.
"	67 "	44—excellent.
"	67 "	48—good.
"	67 "	52—very good.
"	67 "	56—good.
"	67 "	66— "
"	67 "	71— "
"	67 "	73—excellent.
"	67 "	76—good.
"	67 "	81—excellent.
"	67 "	89—good.
"	67 "	95— "

Figs. 67 and 107—good.
 “ 67 “ 119—very good.
 “ 67 “ 123— “ “
 “ 67 “ 124—good.
 “ 67 “ 133— “
 “ 67 “ 136— “
 “ 67 “ 140— “
 “ 67 “ 145— “

Figs. 67 and 149—very good.
 “ 67 “ 150— “ “
 “ 67 “ 152— “ “
 “ 67 “ 157—excellent.
 “ 67 “ 159—very good.
 “ 67 “ 162— “ “
 “ 67 “ 163—excellent.
 “ 67 “ 169—very good.

Color No. 73.

Figs. 73 and 2—good.
 “ 73 “ 3—very good.
 “ 73 “ 5— “ “
 “ 73 “ 7— “ “
 “ 73 “ 9—good.
 “ 73 “ 11— “
 “ 73 “ 21— “
 “ 73 “ 37—very good.
 “ 73 “ 38—good.
 “ 73 “ 40—very good.
 “ 73 “ 41—good.
 “ 73 “ 45—excellent.
 “ 73 “ 46—very good.
 “ 73 “ 47—good.
 “ 73 “ 49— “
 “ 73 “ 51— “
 “ 73 “ 52—very good.
 “ 73 “ 53—good.
 “ 73 “ 54— “
 “ 73 “ 57—excellent.
 “ 73 “ 58—very good.
 “ 73 “ 60— “ “
 “ 73 “ 63— “ “
 “ 73 “ 64—good.

Figs. 73 and 67—excellent.
 “ 73 “ 68—very good.
 “ 73 “ 71—good.
 “ 73 “ 74— “
 “ 73 “ 75—very good.
 “ 73 “ 82—good.
 “ 73 “ 83—excellent.
 “ 73 “ 85— “
 “ 73 “ 86—good.
 “ 73 “ 87—very good.
 “ 73 “ 90—good.
 “ 73 “ 92— “
 “ 73 “ 93— “
 “ 73 “ 101— “
 “ 73 “ 102—very good.
 “ 73 “ 103— “ “
 “ 73 “ 104—good.
 “ 73 “ 108— “
 “ 73 “ 111— “
 “ 73 “ 117— “
 “ 73 “ 118—very good.
 “ 73 “ 119— “ “
 “ 73 “ 125—good.
 “ 73 “ 129— “

Figs. 73 and 135 — excellent.
 “ 73 “ 137 — “
 “ 73 “ 139 — “
 “ 73 “ 142 — “
 “ 73 “ 144 — “
 “ 73 “ 148 — “
 “ 73 “ 151 — very good.
 “ 73 “ 153 — “ “
 “ 73 “ 155 — excellent.

Figs. 73 and 159 — very good.
 “ 73 “ 160 — good.
 “ 73 “ 161 — very good.
 “ 73 “ 162 — good.
 “ 73 “ 164 — very good.
 “ 73 “ 170 — excellent.
 “ 73 “ 171 — “
 “ 73 “ 172 — very good.
 “ 73 “ 176 — “ “

Color No. 75.

Figs. 75 and 1 — very good.
 “ 75 “ 6 — “ “
 “ 75 “ 8 — “ “
 “ 75 “ 10 — good.
 “ 75 “ 13 — “
 “ 75 “ 16 — very good.
 “ 75 “ 18 — good.
 “ 75 “ 19 — “
 “ 75 “ 27 — “
 “ 75 “ 28 — “
 “ 75 “ 29 — “
 “ 75 “ 30 — very good.
 “ 75 “ 31 — good.
 “ 75 “ 36 — “
 “ 75 “ 42 — “
 “ 75 “ 59 — “
 “ 75 “ 61 — “
 “ 75 “ 62 — very good.
 “ 75 “ 66 — good.
 “ 75 “ 72 — “
 “ 75 “ 73 — very good.
 “ 75 “ 76 — good.
 “ 75 “ 81 — “

Figs. 75 and 84 — good.
 “ 75 “ 89 — “
 “ 75 “ 94 — excellent.
 “ 75 “ 95 — very good.
 “ 75 “ 100 — good.
 “ 75 “ 107 — “
 “ 75 “ 112 — “
 “ 75 “ 116 — very good.
 “ 75 “ 120 — good.
 “ 75 “ 124 — “
 “ 75 “ 133 — “
 “ 75 “ 138 — excellent.
 “ 75 “ 140 — very good.
 “ 75 “ 141 — good.
 “ 75 “ 143 — very good.
 “ 75 “ 145 — “ “
 “ 75 “ 147 — excellent.
 “ 75 “ 149 — very good.
 “ 75 “ 154 — “ “
 “ 75 “ 156 — “ “
 “ 75 “ 157 — excellent.
 “ 75 “ 163 — very good.
 “ 75 “ 170 — “ “

Color No. 80.

Figs.	80	and	1	—	very good.
"	80	"	2	—	" "
"	80	"	3	—	" "
"	80	"	5	—	" "
"	80	"	15	—	good.
"	80	"	18	—	"
"	80	"	19	—	"
"	80	"	30	—	"
"	80	"	36	—	very good.
"	80	"	37	—	" "
"	80	"	38	—	good.
"	80	"	40	—	"
"	80	"	53	—	"
"	80	"	57	—	excellent.
"	80	"	58	—	good.
"	80	"	60	—	excellent.
"	80	"	63	—	very good.
"	80	"	67	—	" "
"	80	"	68	—	good.
"	80	"	73	—	"
"	80	"	75	—	"
"	80	"	76	—	"
"	80	"	78	—	very good.
"	80	"	83	—	" "
"	80	"	84	—	good.

Figs.	80	and	93	—	good.
"	80	"	94	—	"
"	80	"	100	—	"
"	80	"	101	—	"
"	80	"	102	—	very good.
"	80	"	108	—	good.
"	80	"	116	—	"
"	80	"	133	—	"
"	80	"	135	—	excellent.
"	80	"	137	—	very good.
"	80	"	138	—	" "
"	80	"	139	—	excellent.
"	80	"	142	—	"
"	80	"	143	—	very good.
"	80	"	144	—	" "
"	80	"	147	—	good.
"	80	"	148	—	excellent.
"	80	"	149	—	very good.
"	80	"	151	—	" "
"	80	"	152	—	" "
"	80	"	155	—	excellent.
"	80	"	160	—	good.
"	80	"	161	—	very good.
"	80	"	171	—	excellent.
"	80	"	176	—	very good.

Color No. 81.

Figs.	81	and	2	—	very good.
"	81	"	3	—	excellent.
"	81	"	4	—	good.
"	81	"	5	—	very good.
"	81	"	7	—	" "

Figs.	81	and	9	—	very good.
"	81	"	11	—	good.
"	81	"	15	—	"
"	81	"	21	—	"
"	81	"	24	—	"

Figs. 81 and 37 — excellent.

" 81 " 40 — good.

" 81 " 41 — "

" 81 " 46 — "

" 81 " 53 — "

" 81 " 57 — excellent.

" 81 " 58 — very good.

" 81 " 59 — good.

" 81 " 60 — excellent.

" 81 " 63 — "

" 81 " 64 — good.

" 81 " 67 — excellent.

" 81 " 68 — good.

" 81 " 70 — "

" 81 " 83 — excellent.

" 81 " 85 — good.

" 81 " 93 — very good.

" 81 " 99 — " "

Figs. 81 and 101 — good.

" 81 " 108 — "

" 81 " 110 — very good.

" 81 " 111 — " "

" 81 " 125 — excellent.

" 81 " 126 — very good.

" 81 " 135 — excellent.

" 81 " 137 — very good.

" 81 " 138 — good.

" 81 " 139 — excellent.

" 81 " 142 — "

" 81 " 144 — very good.

" 81 " 148 — excellent.

" 81 " 151 — good.

" 81 " 155 — very good.

" 81 " 160 — good.

" 81 " 161 — very good.

" 81 " 171 — " "

Color No. 83.

Figs. 83 and 1 — excellent.

" 83 " 2 — good.

" 83 " 4 — "

" 83 " 6 — "

" 83 " 8 — "

" 83 " 9 — "

" 83 " 10 — very good.

" 83 " 13 — good.

" 83 " 14 — "

" 83 " 18 — very good.

" 83 " 19 — good.

" 83 " 20 — "

" 83 " 23 — "

Figs. 83 and 27 — good.

" 83 " 28 — very good.

" 83 " 29 — good.

" 83 " 30 — excellent.

" 83 " 31 — good.

" 83 " 35 — "

" 83 " 36 — very good.

" 83 " 42 — good.

" 83 " 44 — excellent.

" 83 " 48 — good.

" 83 " 59 — "

" 83 " 61 — "

" 83 " 62 — "

SERIES OF IMPRESSIONS

SHOWING A LANDSCAPE
PRINTED IN TEN COLORS.

Each block is shown separate and also as registered into its proper place as the work progresses towards completion.



357

First impression



358
Second Block



359
First and Second impressions



360
Third Block



361
First, Second and Third impressions



362

Fourth Block



363

First, Second, Third and Fourth impressions



364
Fifth Block



365
First, Second, Third, Fourth and Fifth impressions



366
Sixth Block



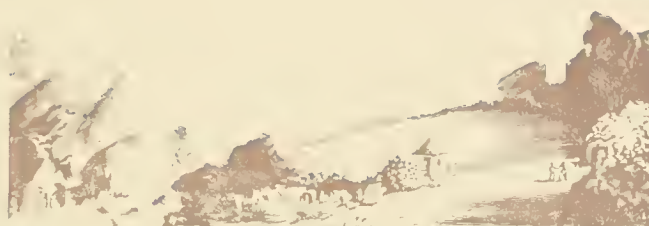
367
First, Second, Third, Fourth, Fifth and Sixth impressions



368
Seventh Block



369
First, Second, Third, Fourth, Fifth, Sixth and Seventh impressions

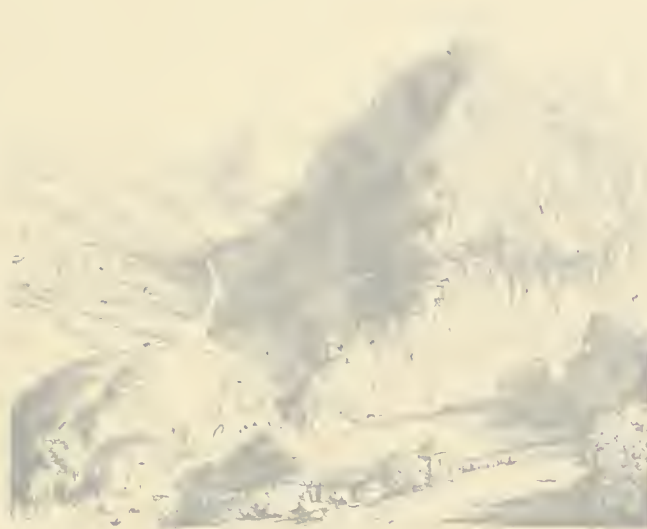


370
Eighth Block



371

First, Second, Third, Fourth, Fifth, Sixth, Seventh and Eighth impressions



372
Ninth Block



373

First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth and Ninth impressions



374

Tenth Block



375

First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth and Tenth impressions



376

The border around the picture was printed in a green-gray, and the whole embossed with an electrotpe taken from emery paper.

Figs. 83 and 66 — good.
 “ 83 “ 71 — very good.
 “ 83 “ 72 — good.
 “ 83 “ 73 — excellent.
 “ 83 “ 76 — very good.
 “ 83 “ 78 — “ “
 “ 83 “ 80 — “ “
 “ 83 “ 81 — excellent.
 “ 83 “ 89 — good.
 “ 83 “ 94 — very good.
 “ 83 “ 95 — “ “
 “ 83 “ 100 — good.
 “ 83 “ 107 — “
 “ 83 “ 112 — “
 “ 83 “ 115 — excellent.
 “ 83 “ 116 — “
 “ 83 “ 118 — “

Figs. 83 and 119 — very good.
 “ 83 “ 120 — good.
 “ 83 “ 123 — very good.
 “ 83 “ 124 — “ “
 “ 83 “ 133 — good.
 “ 83 “ 138 — “
 “ 83 “ 140 — very good.
 “ 83 “ 141 — good.
 “ 83 “ 145 — “
 “ 83 “ 147 — very good.
 “ 83 “ 149 — “ “
 “ 83 “ 154 — “ “
 “ 83 “ 156 — “ “
 “ 83 “ 157 — excellent.
 “ 83 “ 163 — very good.
 “ 83 “ 169 — good.
 “ 83 “ 171 — very good.

Color No. 94.

Figs. 94 and 2 — very good.
 “ 94 “ 5 — excellent.
 “ 94 “ 9 — very good.
 “ 94 “ 11 — good.
 “ 94 “ 21 — “
 “ 94 “ 38 — very good.
 “ 94 “ 40 — excellent.
 “ 94 “ 41 — very good.
 “ 94 “ 46 — “ “
 “ 94 “ 47 — good.
 “ 94 “ 49 — “
 “ 94 “ 52 — “
 “ 94 “ 58 — very good.
 “ 94 “ 71 — good.
 “ 94 “ 74 — “

Figs. 94 and 75 — good.
 “ 94 “ 83 — very good.
 “ 94 “ 87 — good.
 “ 94 “ 90 — “
 “ 94 “ 92 — “
 “ 94 “ 102 — very good.
 “ 94 “ 103 — “ “
 “ 94 “ 104 — good.
 “ 94 “ 117 — “
 “ 94 “ 119 — very good.
 “ 94 “ 129 — “ “
 “ 94 “ 137 — “ “
 “ 94 “ 142 — “ “
 “ 94 “ 144 — good.
 “ 94 “ 148 — very good.

Figs. 94 and 153—very good.
 " 94 " 161—" "
 " 94 " 164—good.

Figs. 94 and 170—very good.
 " 94 " 171—excellent.
 " 94 " 172—very good.

Color No. 110.

Figs. 110 and 1—very good.
 " 110 " 2—good.
 " 110 " 4—very good.
 " 110 " 10—" "
 " 110 " 13—" "
 " 110 " 14—good.
 " 110 " 17—" "
 " 110 " 18—" "
 " 110 " 19—very good.
 " 110 " 20—good.
 " 110 " 28—very good.
 " 110 " 29—good.
 " 110 " 30—excellent.
 " 110 " 31—good.
 " 110 " 36—" "
 " 110 " 39—" "
 " 110 " 41—" "
 " 110 " 44—" "
 " 110 " 48—very good.
 " 110 " 56—good.
 " 110 " 62—" "
 " 110 " 66—" "
 " 110 " 71—" "

Figs. 110 and 72—good.
 " 110 " 73—very good.
 " 110 " 76—" "
 " 110 " 78—good.
 " 110 " 81—very good.
 " 110 " 89—good.
 " 110 " 95—" "
 " 110 " 107—" "
 " 110 " 116—" "
 " 110 " 120—" "
 " 110 " 124—very good.
 " 110 " 133—good.
 " 110 " 140—" "
 " 110 " 145—" "
 " 110 " 149—very good.
 " 110 " 152—" "
 " 110 " 156—" "
 " 110 " 157—" "
 " 110 " 159—good.
 " 110 " 163—very good.
 " 110 " 168—good.
 " 110 " 169—" "
 " 110 " 173—" "

Color No. 115.

Figs. 115 and 2—good.
 " 115 " 5—very good.

Figs. 115 and 9—very good.
 " 115 " 21—good.

Figs. 115 and	37 — good.
" 115 "	38 — "
" 115 "	40 — very good.
" 115 "	41 — good.
" 115 "	46 — very good.
" 115 "	47 — good.
" 115 "	52 — very good.
" 115 "	57 — " "
" 115 "	58 — excellent.
" 115 "	63 — good.
" 115 "	67 — "
" 115 "	68 — "
" 115 "	71 — "
" 115 "	75 — "
" 115 "	83 — excellent.
" 115 "	85 — very good.
" 115 "	86 — good.
" 115 "	87 — "
" 115 "	101 — "
" 115 "	102 — very good.
" 115 "	103 — good.

Figs. 115 and	104 — good.
" 115 "	108 — "
" 115 "	111 — "
" 115 "	119 — "
" 115 "	135 — excellent.
" 115 "	137 — very good.
" 115 "	139 — excellent.
" 115 "	142 — "
" 115 "	144 — very good.
" 115 "	148 — excellent.
" 115 "	151 — very good.
" 115 "	153 — " "
" 115 "	155 — excellent.
" 115 "	160 — good.
" 115 "	161 — very good.
" 115 "	163 — " "
" 115 "	170 — " "
" 115 "	171 — excellent.
" 115 "	172 — very good.
" 115 "	174 — good.
" 115 "	176 — very good.

Color No. 118.

Figs. 118 and	1 — very good.
" 118 "	2 — " "
" 118 "	3 — good.
" 118 "	4 — "
" 118 "	5 — very good.
" 118 "	9 — good.
" 118 "	10 — "
" 118 "	13 — "
" 118 "	14 — "
" 118 "	15 — "

Figs. 118 and	19 — good.
" 118 "	20 — "
" 118 "	29 — "
" 118 "	30 — very good.
" 118 "	31 — good.
" 118 "	36 — "
" 118 "	39 — very good.
" 118 "	40 — good.
" 118 "	41 — "
" 118 "	47 — "

Figs.	118	and	59	—	excellent.
"	118	"	60	—	good.
"	118	"	61	—	very good.
"	118	"	62	—	good.
"	118	"	63	—	"
"	118	"	67	—	very good.
"	118	"	68	—	good.
"	118	"	73	—	very good.
"	118	"	76	—	" "
"	118	"	83	—	excellent.
"	118	"	85	—	good.
"	118	"	94	—	"
"	118	"	96	—	"
"	118	"	100	—	"
"	118	"	112	—	"
"	118	"	116	—	"
"	118	"	125	—	"

Figs.	118	and	126	—	good.
"	118	"	135	—	very good.
"	118	"	138	—	" "
"	118	"	139	—	excellent.
"	118	"	140	—	very good.
"	118	"	142	—	good.
"	118	"	143	—	excellent.
"	118	"	147	—	good.
"	118	"	148	—	very good.
"	118	"	151	—	good.
"	118	"	154	—	very good.
"	118	"	155	—	good.
"	118	"	156	—	very good.
"	118	"	157	—	excellent.
"	118	"	163	—	very good.
"	118	"	166	—	good.
"	118	"	169	—	"

Color No. 119.

Figs.	119	and	1	—	very good.
"	119	"	2	—	" "
"	119	"	3	—	" "
"	119	"	5	—	good.
"	119	"	6	—	"
"	119	"	9	—	very good.
"	119	"	10	—	good.
"	119	"	15	—	"
"	119	"	16	—	"
"	119	"	18	—	"
"	119	"	19	—	"
"	119	"	20	—	"
"	119	"	27	—	"
"	119	"	28	—	very good.
"	119	"	29	—	good.

Figs.	119	and	30	—	very good.
"	119	"	31	—	good.
"	119	"	32	—	"
"	119	"	36	—	very good.
"	119	"	37	—	" "
"	119	"	57	—	" "
"	119	"	59	—	" "
"	119	"	60	—	" "
"	119	"	61	—	good.
"	119	"	62	—	"
"	119	"	63	—	"
"	119	"	67	—	very good.
"	119	"	73	—	" "
"	119	"	76	—	good.
"	119	"	83	—	very good.

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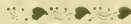
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Figs.	119	and	84	— good.
"	119	"	93	— excellent.
"	119	"	94	— very good.
"	119	"	95	— good.
"	119	"	99	— "
"	119	"	100	— "
"	119	"	107	— "
"	119	"	111	— "
"	119	"	112	— "
"	119	"	116	— very good.
"	119	"	120	— good.
"	119	"	124	— "
"	119	"	125	— very good.
"	119	"	126	— " "
"	119	"	133	— good.

Figs.	119	and	135	— very good.
"	119	"	138	— " "
"	119	"	139	— " "
"	119	"	140	— good.
"	119	"	142	— "
"	119	"	143	— very good.
"	119	"	147	— " "
"	119	"	148	— excellent.
"	119	"	149	— very good.
"	119	"	154	— excellent.
"	119	"	156	— very good.
"	119	"	157	— excellent.
"	119	"	163	— very good.
"	119	"	168	— good.
"	119	"	173	— "

Color No. 123.

Figs.	123	and	1	— good.
"	123	"	2	— very good.
"	123	"	3	— good.
"	123	"	4	— "
"	123	"	5	— very good.
"	123	"	7	— good.
"	123	"	9	— "
"	123	"	10	— "
"	123	"	11	— "
"	123	"	15	— "
"	123	"	21	— "
"	123	"	30	— "
"	123	"	37	— excellent.
"	123	"	38	— good.
"	123	"	39	— "
"	123	"	40	— "
"	123	"	41	— "

Figs.	123	and	45	— good.
"	123	"	46	— very good.
"	123	"	47	— good.
"	123	"	49	— "
"	123	"	52	— very good.
"	123	"	53	— good.
"	123	"	57	— excellent.
"	123	"	58	— very good.
"	123	"	60	— " "
"	123	"	63	— " "
"	123	"	64	— good.
"	123	"	67	— very good.
"	123	"	68	— good.
"	123	"	71	— very good.
"	123	"	74	— good.
"	123	"	75	— "
"	123	"	83	— very good.

Figs. 123 and 85 — very good.
 " 123 " 93 — good.
 " 123 " 99 — "
 " 123 " 101 — "
 " 123 " 102 — very good.
 " 123 " 103 — good.
 " 123 " 104 — "
 " 123 " 108 — "
 " 123 " 111 — "
 " 123 " 117 — "
 " 123 " 119 — "
 " 123 " 125 — very good.
 " 123 " 126 — good.
 " 123 " 135 — very good.

Figs. 123 and 137 — good.
 " 123 " 139 — excellent.
 " 123 " 142 — very good.
 " 123 " 144 — good.
 " 123 " 148 — excellent.
 " 123 " 151 — very good.
 " 123 " 153 — " "
 " 123 " 155 — excellent.
 " 123 " 160 — good.
 " 123 " 161 — very good.
 " 123 " 170 — " "
 " 123 " 171 — excellent.
 " 123 " 172 — very good.
 " 123 " 176 — " "

Color No. 135.

Figs. 135 and 1 — good.
 " 135 " 2 — excellent.
 " 135 " 4 — very good.
 " 135 " 9 — excellent.
 " 135 " 10 — good.
 " 135 " 11 — very good.
 " 135 " 12 — " "
 " 135 " 13 — good.
 " 135 " 14 — very good.
 " 135 " 16 — " "
 " 135 " 17 — excellent.
 " 135 " 18 — very good.
 " 135 " 19 — good.
 " 135 " 20 — "
 " 135 " 23 — "
 " 135 " 27 — very good.
 " 135 " 28 — good.
 " 135 " 29 — "

Figs. 135 and 30 — very good.
 " 135 " 31 — good.
 " 135 " 35 — "
 " 135 " 36 — excellent.
 " 135 " 39 — "
 " 135 " 41 — very good.
 " 135 " 42 — good.
 " 135 " 43 — "
 " 135 " 44 — excellent.
 " 135 " 48 — very good.
 " 135 " 52 — " "
 " 135 " 55 — good.
 " 135 " 56 — very good.
 " 135 " 66 — " "
 " 135 " 71 — " "
 " 135 " 72 — good.
 " 135 " 73 — excellent.
 " 135 " 76 — good.

Figs. 135 and 78—very good.
 “ 135 “ 80—excellent.
 “ 135 “ 81— “
 “ 135 “ 89—very good.
 “ 135 “ 95—good.
 “ 135 “ 107— “
 “ 135 “ 112— “
 “ 135 “ 116—very good.
 “ 135 “ 120—good.
 “ 135 “ 123—very good.
 “ 135 “ 124—excellent.
 “ 135 “ 133—good.

Figs. 135 and 136—very good.
 “ 135 “ 140—good.
 “ 135 “ 145— “
 “ 135 “ 146— “
 “ 135 “ 149— “
 “ 135 “ 152— “
 “ 135 “ 156— “
 “ 135 “ 157— “
 “ 135 “ 159—very good.
 “ 135 “ 162—good.
 “ 135 “ 163—very good.
 “ 135 “ 169—good.

Color No. 138.

Figs. 138 and 2—excellent.
 “ 138 “ 5—very good.
 “ 138 “ 9—excellent.
 “ 138 “ 11—good.
 “ 138 “ 14— “
 “ 138 “ 21—very good.
 “ 138 “ 38—good.
 “ 138 “ 39— “
 “ 138 “ 40—excellent.
 “ 138 “ 41— “
 “ 138 “ 45— “
 “ 138 “ 46— “
 “ 138 “ 47—very good.
 “ 138 “ 49—good.
 “ 138 “ 51—very good.
 “ 138 “ 52— “ “
 “ 138 “ 54—good.
 “ 138 “ 56— “
 “ 138 “ 58— “
 “ 138 “ 71—very good.

Figs. 138 and 74—good.
 “ 138 “ 75—excellent.
 “ 138 “ 80—very good.
 “ 138 “ 81—good.
 “ 138 “ 83— “
 “ 138 “ 85—excellent.
 “ 138 “ 86—very good.
 “ 138 “ 87—good.
 “ 138 “ 90— “
 “ 138 “ 92— “
 “ 138 “ 101— “
 “ 138 “ 102—very good.
 “ 138 “ 103— “ “
 “ 138 “ 104— “ “
 “ 138 “ 117—good.
 “ 138 “ 118—very good.
 “ 138 “ 119— “ “
 “ 138 “ 129—good.
 “ 138 “ 134— “
 “ 138 “ 136— “

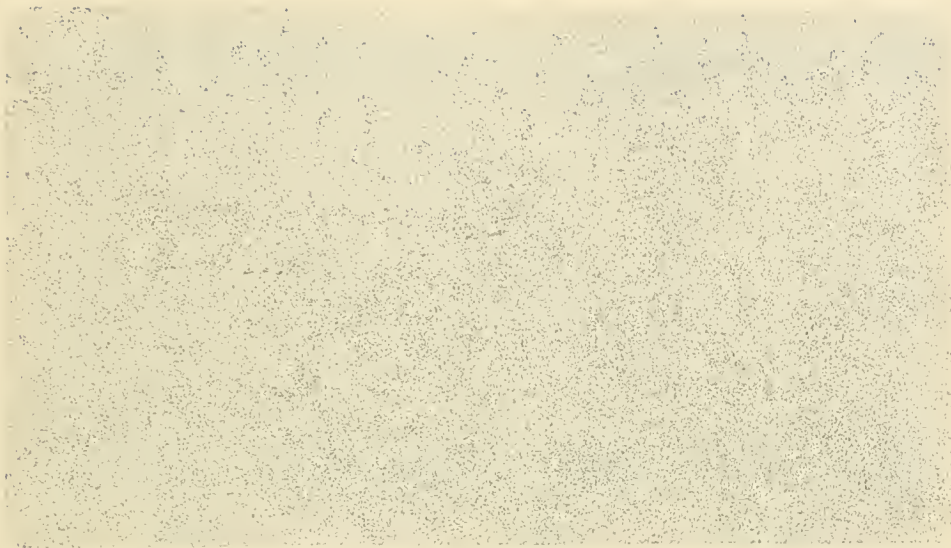
Figs. 138 and 137 — very good.
 " 138 " 142 — " "
 " 138 " 144 — " "
 " 138 " 150 — good.
 " 138 " 153 — very good.

Figs. 138 and 159 — good.
 " 138 " 162 — "
 " 138 " 164 — very good.
 " 138 " 170 — " "
 " 138 " 172 — " "

Color No. 139.

Figs. 139 and 1 — good.
 " 139 " 2 — very good.
 " 139 " 4 — " "
 " 139 " 9 — " "
 " 139 " 10 — good.
 " 139 " 11 — "
 " 139 " 12 — "
 " 139 " 13 — very good.
 " 139 " 14 — excellent.
 " 139 " 17 — "
 " 139 " 18 — very good.
 " 139 " 19 — " "
 " 139 " 20 — excellent.
 " 139 " 23 — good.
 " 139 " 27 — very good.
 " 139 " 28 — " "
 " 139 " 29 — good.
 " 139 " 30 — excellent.
 " 139 " 31 — good.
 " 139 " 35 — "
 " 139 " 36 — very good.
 " 139 " 39 — excellent.
 " 139 " 41 — "
 " 139 " 42 — good.
 " 139 " 43 — "
 " 139 " 44 — excellent.
 " 139 " 48 — very good.

Figs. 139 and 55 — good.
 " 139 " 56 — very good.
 " 139 " 66 — " "
 " 139 " 71 — good.
 " 139 " 72 — very good.
 " 139 " 73 — excellent.
 " 139 " 76 — good.
 " 139 " 77 — "
 " 139 " 78 — very good.
 " 139 " 80 — excellent.
 " 139 " 81 — "
 " 139 " 88 — good.
 " 139 " 89 — very good.
 " 139 " 106 — good.
 " 139 " 107 — very good.
 " 139 " 120 — good.
 " 139 " 121 — "
 " 139 " 123 — excellent.
 " 139 " 124 — very good.
 " 139 " 133 — " "
 " 139 " 134 — good.
 " 139 " 136 — very good.
 " 139 " 140 — good.
 " 139 " 141 — "
 " 139 " 145 — very good.
 " 139 " 146 — good.
 " 139 " 149 — "



378

Printed with color 109, from an electrotype taken from emery paper.



379

Printed with color 109, from a wood block. The pattern was made with needles fastened together in bunches.



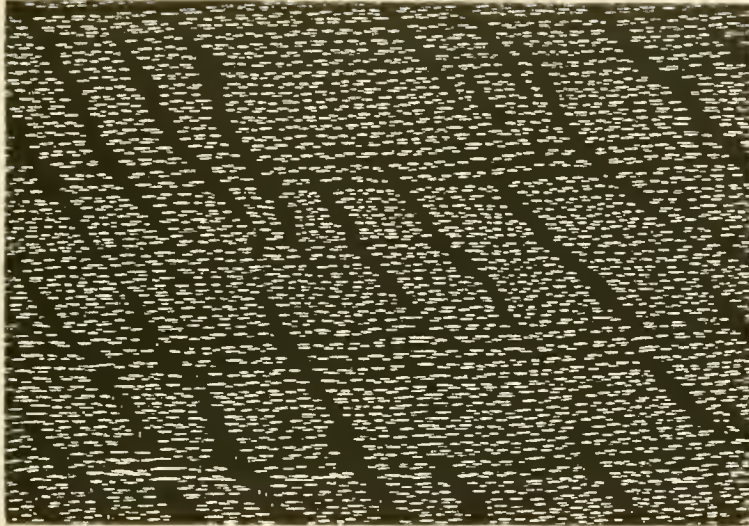
380

Printed with color 114, from a piece of walnut wood, side grain.



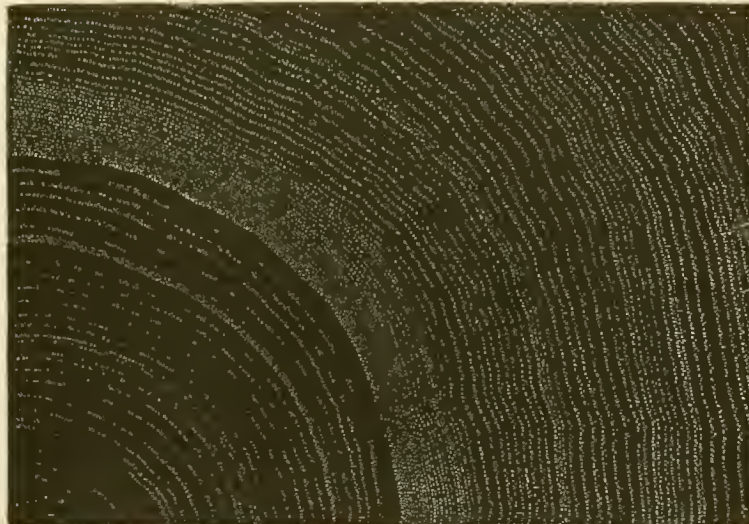
381

Printed with color 114, from a piece of ash wood, side grain.



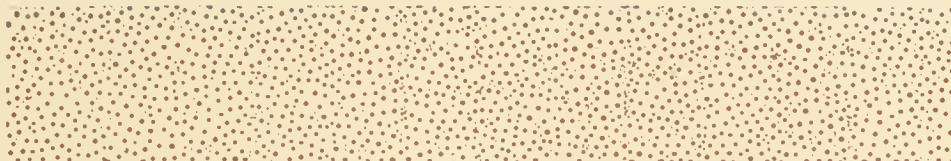
382

Printed with color 79, from a piece of quartered oak wood.

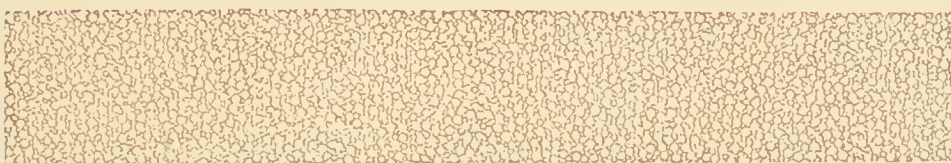


383

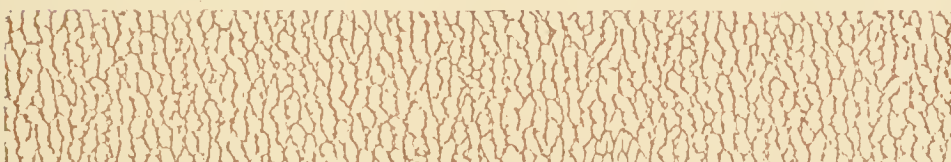
Printed with color 79, from a piece of shell-bark hickory wood, end grain.



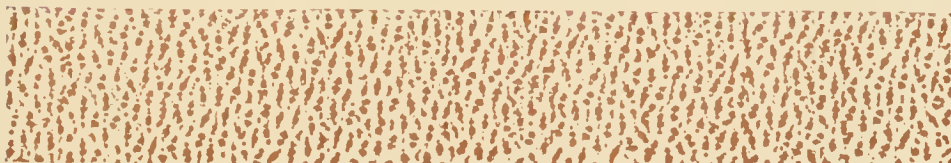
384



385



386



387

Printed with color 124, from stereotype plates taken from different patterns of book-cloth.

Figs. 139 and 152 — very good.

" 139 " 157 — good.

" 139 " 159 — "

Figs. 139 and 162 — good.

" 139 " 163 — very good.

" 139 " 169 — good.

Color No. 142.

Figs. 142 and 1 — very good.

" 142 " 2 — good.

" 142 " 4 — "

" 142 " 6 — very good.

" 142 " 8 — " "

" 142 " 10 — " "

" 142 " 13 — " "

" 142 " 14 — good.

" 142 " 16 — "

" 142 " 17 — very good.

" 142 " 18 — " "

" 142 " 19 — " "

" 142 " 20 — " "

" 142 " 23 — good.

" 142 " 26 — "

" 142 " 27 — very good.

" 142 " 28 — good.

" 142 " 29 — very good.

" 142 " 30 — excellent.

" 142 " 31 — good.

" 142 " 32 — good.

" 142 " 35 — "

" 142 " 36 — very good.

" 142 " 39 — good.

" 142 " 42 — "

" 142 " 43 — "

" 142 " 44 — excellent.

" 142 " 48 — good.

" 142 " 52 — very good.

Figs. 142 and 55 — good.

" 142 " 56 — very good.

" 142 " 59 — good.

" 142 " 61 — "

" 142 " 62 — very good.

" 142 " 66 — " "

" 142 " 71 — " "

" 142 " 72 — good.

" 142 " 73 — excellent.

" 142 " 76 — very good.

" 142 " 78 — good.

" 142 " 80 — excellent.

" 142 " 81 — "

" 142 " 84 — good.

" 142 " 88 — "

" 142 " 89 — very good.

" 142 " 94 — " "

" 142 " 95 — " "

" 142 " 100 — good.

" 142 " 107 — excellent.

" 142 " 112 — good.

" 142 " 115 — excellent.

" 142 " 116 — very good.

" 142 " 120 — good.

" 142 " 123 — very good.

" 142 " 124 — excellent.

" 142 " 133 — good.

" 142 " 136 — "

" 142 " 138 — very good.

Figs. 142 and 140 — very good.
 " 142 " 141 — good.
 " 142 " 145 — very good.
 " 142 " 146 — good.
 " 142 " 147 — very good.
 " 142 " 149 — good.

Figs. 142 and 154 — good.
 " 142 " 156 — "
 " 142 " 157 — "
 " 142 " 163 — very good.
 " 142 " 166 — good.
 " 142 " 168 — "

Color No. 144.

Figs. 144 and 1 — very good.
 " 144 " 6 — good.
 " 144 " 8 — "
 " 144 " 10 — very good.
 " 144 " 13 — " "
 " 144 " 14 — good.
 " 144 " 16 — "
 " 144 " 17 — excellent.
 " 144 " 18 — good.
 " 144 " 19 — very good.
 " 144 " 20 — " "
 " 144 " 27 — good.
 " 144 " 28 — "
 " 144 " 29 — very good.
 " 144 " 30 — excellent.
 " 144 " 31 — good.
 " 144 " 32 — "
 " 144 " 35 — good.
 " 144 " 36 — very good.
 " 144 " 39 — good.
 " 144 " 42 — very good.
 " 144 " 43 — good.
 " 144 " 44 — very good.
 " 144 " 48 — " "
 " 144 " 56 — good.
 " 144 " 59 — very good.

Figs. 144 and 61 — good.
 " 144 " 62 — very good.
 " 144 " 66 — " "
 " 144 " 72 — good.
 " 144 " 73 — excellent.
 " 144 " 76 — good.
 " 144 " 78 — very good.
 " 144 " 80 — " "
 " 144 " 81 — " "
 " 144 " 84 — good.
 " 144 " 89 — very good.
 " 144 " 94 — good.
 " 144 " 95 — very good.
 " 144 " 96 — good.
 " 144 " 98 — "
 " 144 " 100 — "
 " 144 " 107 — very good.
 " 144 " 112 — good.
 " 144 " 113 — "
 " 144 " 115 — very good.
 " 144 " 116 — " "
 " 144 " 120 — " "
 " 144 " 121 — good.
 " 144 " 124 — very good.
 " 144 " 133 — " "
 " 144 " 138 — " "

Figs. 144 and 140 — excellent.
 " 144 " 141 — good.
 " 144 " 145 — very good.
 " 144 " 146 — good.
 " 144 " 147 — excellent.
 " 144 " 149 — very good.

Figs. 144 and 154 — very good.
 " 144 " 156 — " "
 " 144 " 157 — " "
 " 144 " 163 — good.
 " 144 " 168 — "
 " 144 " 173 — "

Color No. 148.

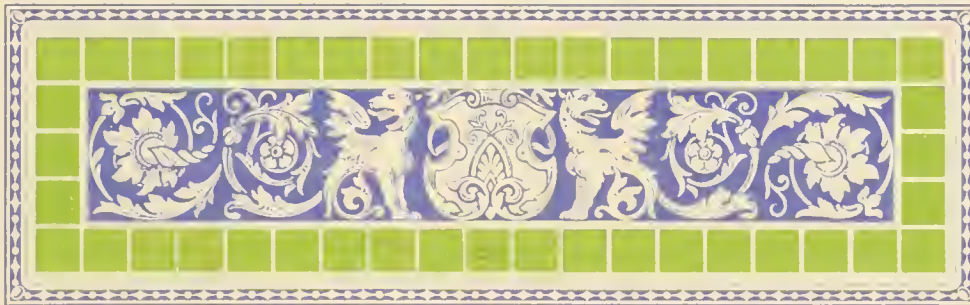
Figs. 148 and 1 — excellent.
 " 148 " 2 — very good.
 " 148 " 4 — " "
 " 148 " 8 — good.
 " 148 " 9 — very good.
 " 148 " 10 — excellent.
 " 148 " 11 — good.
 " 148 " 12 — "
 " 148 " 13 — excellent.
 " 148 " 14 — very good.
 " 148 " 16 — good.
 " 148 " 17 — excellent.
 " 148 " 18 — very good.
 " 148 " 19 — excellent.
 " 148 " 20 — "
 " 148 " 23 — very good.
 " 148 " 26 — good.
 " 148 " 27 — very good.
 " 148 " 28 — " "
 " 148 " 29 — " "
 " 148 " 30 — excellent.
 " 148 " 31 — very good.
 " 148 " 32 — good.
 " 148 " 34 — excellent.
 " 148 " 35 — very good.
 " 148 " 36 — excellent.

Figs. 148 and 39 — excellent.
 " 148 " 41 — "
 " 148 " 42 — good.
 " 148 " 43 — very good.
 " 148 " 44 — excellent.
 " 148 " 48 — "
 " 148 " 51 — good.
 " 148 " 52 — very good.
 " 148 " 55 — " "
 " 148 " 56 — " "
 " 148 " 62 — good.
 " 148 " 66 — excellent.
 " 148 " 71 — good.
 " 148 " 72 — very good.
 " 148 " 73 — excellent.
 " 148 " 76 — very good.
 " 148 " 78 — " "
 " 148 " 80 — excellent.
 " 148 " 81 — "
 " 148 " 84 — good.
 " 148 " 88 — "
 " 148 " 89 — very good.
 " 148 " 95 — good.
 " 148 " 106 — "
 " 148 " 107 — very good.
 " 148 " 112 — good.

Figs. 148 and 113 — good.
 “ 148 “ 115 — excellent.
 “ 148 “ 116 — very good.
 “ 148 “ 119 — “ “
 “ 148 “ 120 — “ “
 “ 148 “ 121 — very good.
 “ 148 “ 123 — excellent.
 “ 148 “ 124 — “
 “ 148 “ 127 — good.
 “ 148 “ 133 — very good.
 “ 148 “ 134 — good.
 “ 148 “ 136 — very good.
 “ 148 “ 140 — “ “
 “ 148 “ 141 — good.

Figs. 148 and 145 — very good.
 “ 148 “ 146 — good.
 “ 148 “ 147 — “
 “ 148 “ 149 — very good.
 “ 148 “ 152 — good.
 “ 148 “ 156 — “
 “ 148 “ 157 — very good.
 “ 148 “ 159 — good.
 “ 148 “ 163 — very good.
 “ 148 “ 165 — good.
 “ 148 “ 168 — “
 “ 148 “ 169 — “
 “ 148 “ 173 — “
 “ 148 “ 178 — very good.





388

Light Violet-Blue and Yellow-Green



389

Deep Violet-Blue and Light Yellow-Green



390

Violet-Blue and Green-Yellow

Two-Color Combinations



Morgan



391

Ultramarine Blue and Persian Orange

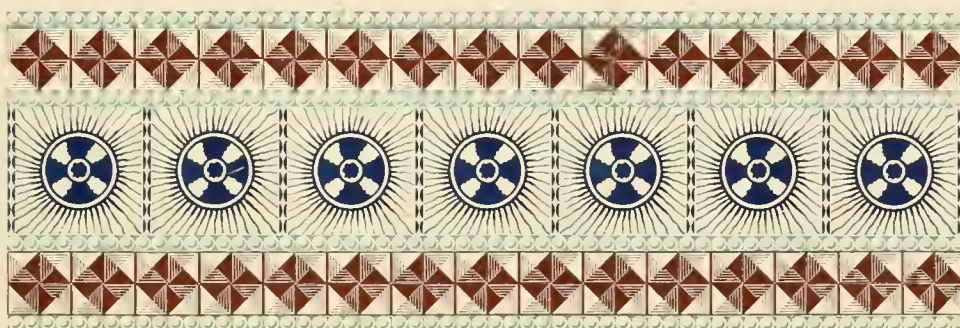


Grayson



392

Bronze Brown and Green Lake



393

Bronze Blue, Bronze Brown, and Green Lake



Knöfler



394

Carmine and Green Lake

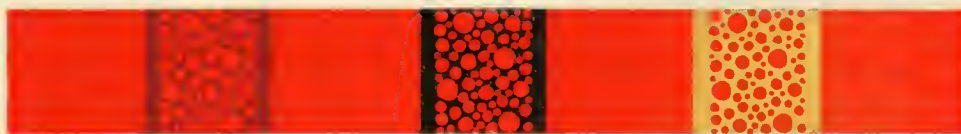


Jones



395

Bronze Blue and Persian Orange



396

Gray on Red

Black on Red

Gold on Red



397

Gray on Green

Black on Green

Gold on Green



398

Gray on Blue

Black on Blue

Gold on Blue



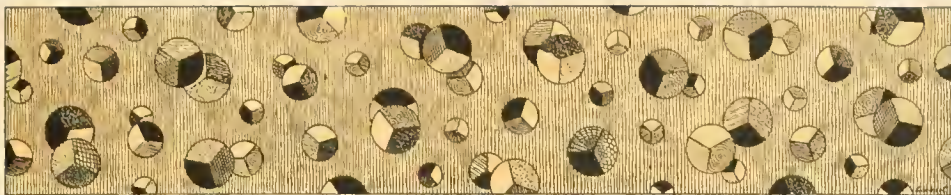
399

Red surrounded by Blue, Gray, Black, White, and Green



400

Black Surrounded by Blue, Gray, Red, White, and Green



Three-Color Combinations.



We will now give a number of lists of three-color combinations taken from the colors shown on Plates 1 to 21, inclusive, which we consider *good*, *very good*, or *excellent*. The first is a list of combinations including red and yellow; this is followed by a list including red and blue; then a number of lists including red and green, red and deep blue, red and lemon-yellow, red and gray, and red and black in the order named. Then these are followed by lists including red and colors 34, 41, 45, 52, 67, 75, 83, 110, 135, 139 and 148 in the order given, altogether making a collection of several hundred combinations, in which red is the principal color. In forming these combinations we were governed solely by the natural laws of harmony and contrast of colors.

Red and Yellow.

Figs. 1, 2, and 3 — very good.
 “ 1, 2, “ 7 — “ “
 “ 1, 2, “ 11 — “ “
 “ 1, 2, “ 12 — “ “
 “ 1, 2, “ 26 — good.

Figs. 1, 2, and 32 — very good.
 “ 1, 2, “ 34 — “ “
 “ 1, 2, “ 37 — good.
 “ 1, 2, “ 49 — very good.
 “ 1, 2, “ 52 — “ “

Figs. 1, 2, and 57 — excellent.
 " 1, 2, " 60 — very good.
 " 1, 2, " 63 — good.
 " 1, 2, " 67 — excellent.
 " 1, 2, " 68 — very good.
 " 1, 2, " 77 — " "
 " 1, 2, " 80 — good.
 " 1, 2, " 81 — "
 " 1, 2, " 83 — very good.
 " 1, 2, " 108 — excellent.

Figs. 1, 2, and 117 — very good.
 " 1, 2, " 118 — excellent.
 " 1, 2, " 119 — very good.
 " 1, 2, " 135 — " "
 " 1, 2, " 139 — " "
 " 1, 2, " 148 — excellent.
 " 1, 2, " 151 — good.
 " 1, 2, " 155 — very good.
 " 1, 2, " 158 — " "
 " 1, 2, " 171 — " "

Red and Blue.

Figs. 1, 3, and 9 — very good.
 " 1, 3, " 11 — good.
 " 1, 3, " 32 — very good.
 " 1, 3, " 34 — " "
 " 1, 3, " 41 — " "
 " 1, 3, " 47 — good.
 " 1, 3, " 52 — very good.
 " 1, 3, " 68 — good.
 " 1, 3, " 71 — very good.

Figs. 1, 3, and 79 — very good.
 " 1, 3, " 80 — good.
 " 1, 3, " 81 — "
 " 1, 3, " 108 — "
 " 1, 3, " 139 — very good.
 " 1, 3, " 155 — good.
 " 1, 3, " 159 — very good.
 " 1, 3, " 162 — good.
 " 1, 3, " 169 — very good.

Red and Green.

Figs. 1, 5, and 11 — very good.
 " 1, 5, " 12 — " "
 " 1, 5, " 26 — good.
 " 1, 5, " 32 — very good.
 " 1, 5, " 33 — " "
 " 1, 5, " 34 — " "
 " 1, 5, " 40 — " "

Figs. 1, 5, and 90 — very good.
 " 1, 5, " 92 — " "
 " 1, 5, " 103 — good.
 " 1, 5, " 104 — very good.
 " 1, 5, " 113 — good.
 " 1, 5, " 117 — "
 " 1, 5, " 118 — very good.

Figs. 1, 5, and 129 — good.
 “ 1, 5, “ 133 — very good.
 “ 1, 5, “ 137 — good.
 “ 1, 5, “ 149 — “

Figs. 1, 5, and 153 — very good.
 “ 1, 5, “ 158 — “ “
 “ 1, 5, “ 163 — good.
 “ 1, 5, “ 172 — “

Red and Deep Blue.

Figs. 1, 7, and 9 — good.
 “ 1, 7, “ 11 — “
 “ 1, 7, “ 31 — “
 “ 1, 7, “ 32 — very good.
 “ 1, 7, “ 39 — good.
 “ 1, 7, “ 41 — “
 “ 1, 7, “ 47 — very good.

Figs. 1, 7, and 52 — good.
 “ 1, 7, “ 71 — “
 “ 1, 7, “ 81 — “
 “ 1, 7, “ 139 — very good.
 “ 1, 7, “ 150 — “ “
 “ 1, 7, “ 155 — “ “
 “ 1, 7, “ 162 — good.

Red and Lemon Yellow.

Figs. 1, 9, and 11 — very good.
 “ 1, 9, “ 12 — good.
 “ 1, 9, “ 24 — “
 “ 1, 9, “ 26 — “
 “ 1, 9, “ 32 — very good.
 “ 1, 9, “ 34 — “ “
 “ 1, 9, “ 37 — good.
 “ 1, 9, “ 57 — very good.
 “ 1, 9, “ 60 — “ “
 “ 1, 9, “ 63 — “ “
 “ 1, 9, “ 67 — excellent.
 “ 1, 9, “ 68 — very good.
 “ 1, 9, “ 83 — good.
 “ 1, 9, “ 108 — “

Figs. 1, 9, and 110 — very good.
 “ 1, 9, “ 111 — “ “
 “ 1, 9, “ 117 — “ “
 “ 1, 9, “ 118 — excellent.
 “ 1, 9, “ 119 — “
 “ 1, 9, “ 135 — “
 “ 1, 9, “ 139 — “
 “ 1, 9, “ 142 — good.
 “ 1, 9, “ 144 — “
 “ 1, 9, “ 148 — “
 “ 1, 9, “ 151 — “
 “ 1, 9, “ 155 — “
 “ 1, 9, “ 171 — “
 “ 1, 9, “ 176 — “

Red and Gray.

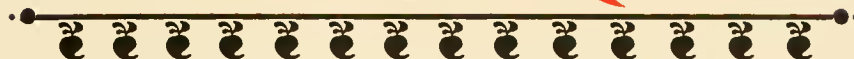
Figs. I, II, and 12 — very good.	Figs. I, II, and 83 — excellent.
" I, II, " 24 — good.	" I, II, " 85 — very good.
" I, II, " 26 — " "	" I, II, " 101 — " "
" I, II, " 33 — " "	" I, II, " 135 — excellent.
" I, II, " 34 — very good.	" I, II, " 139 — " "
" I, II, " 40 — excellent.	" I, II, " 142 — very good.
" I, II, " 41 — very good.	" I, II, " 148 — excellent.
" I, II, " 46 — " "	" I, II, " 149 — very good.
" I, II, " 47 — " "	" I, II, " 150 — " "
" I, II, " 52 — good.	" I, II, " 151 — " "
" I, II, " 58 — very good.	" I, II, " 153 — " "
" I, II, " 60 — " "	" I, II, " 155 — excellent.
" I, II, " 71 — good.	" I, II, " 161 — good.
" I, II, " 74 — " "	" I, II, " 162 — very good.
" I, II, " 79 — very good.	" I, II, " 171 — " "
" I, II, " 80 — " "	" I, II, " 172 — " "

Red and Black.

Figs. I, 12, and 40 — very good.	Figs. I, 12, and 103 — very good.
" I, 12, " 41 — good.	" I, 12, " 104 — " "
" I, 12, " 46 — very good.	" I, 12, " 133 — good.
" I, 12, " 47 — good.	" I, 12, " 135 — excellent.
" I, 12, " 52 — " "	" I, 12, " 137 — very good.
" I, 12, " 57 — excellent.	" I, 12, " 139 — excellent.
" I, 12, " 58 — very good.	" I, 12, " 142 — very good.
" I, 12, " 60 — good.	" I, 12, " 144 — good.
" I, 12, " 63 — very good.	" I, 12, " 148 — excellent.
" I, 12, " 67 — good.	" I, 12, " 149 — very good.
" I, 12, " 71 — very good.	" I, 12, " 150 — good.
" I, 12, " 83 — excellent.	" I, 12, " 153 — " "
" I, 12, " 85 — " "	" I, 12, " 155 — very good.
" I, 12, " 86 — very good.	" I, 12, " 162 — good.
" I, 12, " 102 — good.	" I, 12, " 171 — very good.

DO NOT FORGET THAT

This Red



FORMS A BETTER
COMBINATION
WITH

*** Black ***



THAN ROSE LAKE OR
ANY OTHER RED WHICH
LEANS TOWARD PURPLE



• Printers •

often make the mistake of combining a purplish
red with black.

Red and Color No. 34.

Figs. 1, 34, and 32—very good.
 “ 1, 34, “ 38—good.
 “ 1, 34, “ 40—excellent.
 “ 1, 34, “ 41—very good.
 “ 1, 34, “ 45— “ “
 “ 1, 34, “ 46—excellent.
 “ 1, 34, “ 47—very good.
 “ 1, 34, “ 49—good.
 “ 1, 34, “ 52—very good.
 “ 1, 34, “ 57—excellent.
 “ 1, 34, “ 58—very good.
 “ 1, 34, “ 60— “ “
 “ 1, 34, “ 63— “ “
 “ 1, 34, “ 67— “ “
 “ 1, 34, “ 68—good.
 “ 1, 34, “ 71— “
 “ 1, 34, “ 74— “
 “ 1, 34, “ 75—very good.
 “ 1, 34, “ 81—good.
 “ 1, 34, “ 83—excellent.
 “ 1, 34, “ 85— “
 “ 1, 34, “ 86—very good.
 “ 1, 34, “ 87—good.

Figs. 1, 34, and 90—good.
 “ 1, 34, “ 102—very good.
 “ 1, 34, “ 103— “ “
 “ 1, 34, “ 104— “ “
 “ 1, 34, “ 108— “ “
 “ 1, 34, “ 110—good.
 “ 1, 34, “ 111—very good.
 “ 1, 34, “ 117—good.
 “ 1, 34, “ 119—very good.
 “ 1, 34, “ 129— “ “
 “ 1, 34, “ 133— “ “
 “ 1, 34, “ 135—excellent.
 “ 1, 34, “ 137—very good.
 “ 1, 34, “ 139—excellent.
 “ 1, 34, “ 142— “
 “ 1, 34, “ 144—very good.
 “ 1, 34, “ 148—excellent.
 “ 1, 34, “ 151—very good.
 “ 1, 34, “ 155—excellent.
 “ 1, 34, “ 161—very good.
 “ 1, 34, “ 170— “ “
 “ 1, 34, “ 171—excellent.
 “ 1, 34, “ 176—very good.

Red and Color No. 41.

Figs. 1, 41, and 32—very good.
 “ 1, 41, “ 34— “ “
 “ 1, 41, “ 37— “ “
 “ 1, 41, “ 49— “ “
 “ 1, 41, “ 57—excellent.
 “ 1, 41, “ 60—very good.
 “ 1, 41, “ 63— “ “

Figs. 1, 41, and 67—excellent.
 “ 1, 41, “ 68—very good.
 “ 1, 41, “ 77—good.
 “ 1, 41, “ 80— “
 “ 1, 41, “ 83—excellent.
 “ 1, 41, “ 108—very good.
 “ 1, 41, “ 110— “ “

Figs. 1, 41, and 111 — excellent.
 " 1, 41, " 117 — very good.
 " 1, 41, " 118 — " "
 " 1, 41, " 119 — " "
 " 1, 41, " 125 — excellent.
 " 1, 41, " 126 — very good.
 " 1, 41, " 135 — excellent.
 " 1, 41, " 139 — "

Figs. 1, 41, and 142 — very good.
 " 1, 41, " 144 — good.
 " 1, 41, " 148 — excellent.
 " 1, 41, " 151 — good.
 " 1, 41, " 155 — very good.
 " 1, 41, " 158 — " "
 " 1, 41, " 171 — excellent.
 " 1, 41, " 176 — good.

Red and Color No. 45.

Figs. 1, 45, and 26 — good.
 " 1, 45, " 32 — very good.
 " 1, 45, " 33 — " "
 " 1, 45, " 34 — " "
 " 1, 45, " 35 — " "
 " 1, 45, " 40 — good.
 " 1, 45, " 46 — very good.
 " 1, 45, " 47 — good.

Figs. 1, 45, and 85 — good.
 " 1, 45, " 103 — "
 " 1, 45, " 133 — very good.
 " 1, 45, " 137 — " "
 " 1, 45, " 149 — " "
 " 1, 45, " 153 — " "
 " 1, 45, " 158 — good.
 " 1, 45, " 171 — "

Red and Color No. 52.

Figs. 1, 52, and 24 — very good.
 " 1, 52, " 26 — good.
 " 1, 52, " 32 — very good.
 " 1, 52, " 33 — " "
 " 1, 52, " 34 — " "
 " 1, 52, " 37 — good.
 " 1, 52, " 50 — very good.
 " 1, 52, " 60 — excellent.
 " 1, 52, " 63 — very good.
 " 1, 52, " 67 — good.
 " 1, 52, " 70 — very good.

Figs. 1, 52, and 83 — excellent.
 " 1, 52, " 93 — very good.
 " 1, 52, " 99 — good.
 " 1, 52, " 108 — "
 " 1, 52, " 110 — "
 " 1, 52, " 111 — very good.
 " 1, 52, " 125 — excellent.
 " 1, 52, " 126 — good.
 " 1, 52, " 133 — "
 " 1, 52, " 135 — excellent.
 " 1, 52, " 139 — "

Figs. 1, 52, and 142 — very good.	Figs. 1, 52, and 155 — very good.
" 1, 52, " 148 — excellent.	" 1, 52, " 164 — " "
" 1, 52, " 149 — very good.	" 1, 52, " 171 — excellent.

Red and Color No. 67.

Figs. 1, 67, and 26 — good.	Figs. 1, 67, and 80 — good.
" 1, 67, " 32 — very good.	" 1, 67, " 81 — very good.
" 1, 67, " 33 — good.	" 1, 67, " 133 — " "
" 1, 67, " 34 — very good.	" 1, 67, " 134 — " "
" 1, 67, " 41 — excellent.	" 1, 67, " 149 — " "
" 1, 67, " 47 — very good.	" 1, 67, " 150 — " "
" 1, 67, " 52 — good.	" 1, 67, " 159 — " "
" 1, 67, " 71 — "	" 1, 67, " 162 — " "

Red and Color No. 75.

Figs. 1, 75, and 16 — good.	Figs. 1, 75, and 133 — very good.
" 1, 75, " 26 — "	" 1, 75, " 144 — " "
" 1, 75, " 32 — very good.	" 1, 75, " 149 — " "
" 1, 75, " 33 — " "	" 1, 75, " 162 — " "
" 1, 75, " 34 — " "	" 1, 75, " 170 — " "

Red and Color No. 83.

Figs. 1, 83, and 26 — good.	Figs. 1, 83, and 78 — good.
" 1, 83, " 32 — excellent.	" 1, 83, " 79 — "
" 1, 83, " 33 — very good.	" 1, 83, " 80 — very good.
" 1, 83, " 34 — excellent.	" 1, 83, " 81 — good.
" 1, 83, " 41 — "	" 1, 83, " 133 — very good.
" 1, 83, " 49 — good.	" 1, 83, " 149 — " "
" 1, 83, " 52 — excellent.	" 1, 83, " 158 — " "
" 1, 83, " 71 — "	" 1, 83, " 161 — good.
" 1, 83, " 77 — good.	" 1, 83, " 171 — very good.

Red and Color No. 110.

Figs. 1, 110, and 32—very good.	Figs. 1, 110, and 135—very good.
" 1, 110, " 41— " "	" 1, 110, " 139— " "
" 1, 110, " 47—good.	" 1, 110, " 148— " "
" 1, 110, " 52— " "	" 1, 110, " 149—very good.
" 1, 110, " 71— " "	" 1, 110, " 155— " "
" 1, 110, " 80—very good.	" 1, 110, " 162—good.
" 1, 110, " 104—good.	" 1, 110, " 171—very good.
" 1, 110, " 133—very good.	" 1, 110, " 176— " "

Red and Color No. 135.

Figs. 1, 135, and 16—good.	Figs. 1, 135, and 81—very good.
" 1, 135, " 26— " "	" 1, 135, " 104—good.
" 1, 135, " 32—excellent.	" 1, 135, " 133—very good.
" 1, 135, " 33—very good.	" 1, 135, " 149— " "
" 1, 135, " 34—excellent.	" 1, 135, " 151— " "
" 1, 135, " 41— " "	" 1, 135, " 155— " "
" 1, 135, " 44—very good.	" 1, 135, " 158— " "
" 1, 135, " 52—excellent.	" 1, 135, " 159— " "
" 1, 135, " 71—very good.	" 1, 135, " 162— " "
" 1, 135, " 80—excellent.	" 1, 135, " 164—good.

Red and Color No. 139.

Figs. 1, 139, and 16—very good.	Figs. 1, 139, and 41—excellent.
" 1, 139, " 26— " "	" 1, 139, " 44—very good.
" 1, 139, " 32—excellent.	" 1, 139, " 52—excellent.
" 1, 139, " 33—very good.	" 1, 139, " 71—very good.
" 1, 139, " 34—excellent.	" 1, 139, " 80—excellent.

Figs. 1, 139, and 81—very good.	Figs. 1, 139, and 155—very good.
" 1, 139, " 104—good.	" 1, 139, " 158—good.
" 1, 139, " 133—very good.	" 1, 139, " 159— "
" 1, 139, " 149— " "	" 1, 139, " 162— "

Red and Color No. 148.

Figs. 1, 148, and 16—good.	Figs. 1, 148, and 71—very good.
" 1, 148, " 26— "	" 1, 148, " 77— " "
" 1, 148, " 32—excellent.	" 1, 148, " 80—excellent.
" 1, 148, " 33—very good.	" 1, 148, " 81—very good.
" 1, 148, " 34—excellent.	" 1, 148, " 104—good.
" 1, 148, " 41— "	" 1, 148, " 133—excellent.
" 1, 148, " 44—very good.	" 1, 148, " 149—very good.
" 1, 148, " 52—excellent.	" 1, 148, " 171— " "

In the following lists of three-color combinations the principal color is yellow.

Yellow and Blue.

Figs. 2, 3, and 1—excellent.	Figs. 2, 3, and 31—very good.
" 2, 3, " 8—very good.	" 2, 3, " 32— " "
" 2, 3, " 10— " "	" 2, 3, " 33—good.
" 2, 3, " 11— " "	" 2, 3, " 34—very good.
" 2, 3, " 12— " "	" 2, 3, " 35— " "
" 2, 3, " 17— " "	" 2, 3, " 36—excellent.
" 2, 3, " 18— " "	" 2, 3, " 49—good.
" 2, 3, " 19— " "	" 2, 3, " 51— "
" 2, 3, " 23—good.	" 2, 3, " 52— "
" 2, 3, " 27— "	" 2, 3, " 62— "
" 2, 3, " 28—very good.	" 2, 3, " 66— "
" 2, 3, " 29— " "	" 2, 3, " 68— "
" 2, 3, " 30—excellent.	" 2, 3, " 72— "

Figs. 2, 3, and 73 — very good.
 " 2, 3, " 76 — " "
 " 2, 3, " 80 — excellent.
 " 2, 3, " 81 — very good.
 " 2, 3, " 89 — " "
 " 2, 3, " 95 — good.
 " 2, 3, " 107 — "
 " 2, 3, " 113 — "
 " 2, 3, " 115 — "
 " 2, 3, " 120 — "
 " 2, 3, " 121 — very good.
 " 2, 3, " 123 — " "
 " 2, 3, " 124 — good.

Figs. 2, 3, and 127 — good.
 " 2, 3, " 131 — "
 " 2, 3, " 133 — very good.
 " 2, 3, " 134 — " "
 " 2, 3, " 135 — excellent.
 " 2, 3, " 140 — very good.
 " 2, 3, " 141 — good.
 " 2, 3, " 145 — "
 " 2, 3, " 146 — "
 " 2, 3, " 149 — "
 " 2, 3, " 150 — "
 " 2, 3, " 151 — "
 " 2, 3, " 156 — "

Yellow and Purple.

Figs. 2, 6, and 11 — very good.
 " 2, 6, " 12 — good.
 " 2, 6, " 21 — "
 " 2, 6, " 49 — very good.
 " 2, 6, " 50 — excellent.
 " 2, 6, " 51 — very good.
 " 2, 6, " 52 — " "
 " 2, 6, " 53 — good.
 " 2, 6, " 57 — very good.
 " 2, 6, " 71 — good.
 " 2, 6, " 80 — very good.

Figs. 2, 6, and 83 — excellent.
 " 2, 6, " 92 — good.
 " 2, 6, " 101 — "
 " 2, 6, " 117 — very good.
 " 2, 6, " 118 — " "
 " 2, 6, " 119 — " "
 " 2, 6, " 134 — " "
 " 2, 6, " 138 — excellent.
 " 2, 6, " 148 — "
 " 2, 6, " 150 — very good.
 " 2, 6, " 154 — " "

Yellow and Rose Lake.

Figs. 2, 8, and 11 — excellent.
 " 2, 8, " 12 — very good.
 " 2, 8, " 24 — " "

Figs. 2, 8, and 32 — very good.
 " 2, 8, " 37 — " "
 " 2, 8, " 49 — " "

Figs. 2, 8, and 50—excellent.
 “ 2, 8, “ 51—very good.
 “ 2, 8, “ 52—good.
 “ 2, 8, “ 57—excellent.
 “ 2, 8, “ 60—very good.
 “ 2, 8, “ 63—excellent.
 “ 2, 8, “ 83— “
 “ 2, 8, “ 108—very good.
 “ 2, 8, “ 110— “ “
 “ 2, 8, “ 111— “ “

Figs. 2, 8, and 113—very good.
 “ 2, 8, “ 114—excellent.
 “ 2, 8, “ 115—very good.
 “ 2, 8, “ 118— “ “
 “ 2, 8, “ 134— “ “
 “ 2, 8, “ 140— “ “
 “ 2, 8, “ 148—excellent.
 “ 2, 8, “ 150—good.
 “ 2, 8, “ 156— “
 “ 2, 8, “ 171— “

Yellow and Gray.

Figs. 2, 11, and 12—good.
 “ 2, 11, “ 15—very good.
 “ 2, 11, “ 16—good.
 “ 2, 11, “ 17—very good.
 “ 2, 11, “ 18—good.
 “ 2, 11, “ 24—very good.
 “ 2, 11, “ 26— “ “
 “ 2, 11, “ 27— “ “
 “ 2, 11, “ 28— “ “
 “ 2, 11, “ 30— “ “
 “ 2, 11, “ 34—good.
 “ 2, 11, “ 35—very good.
 “ 2, 11, “ 36— “ “
 “ 2, 11, “ 37— “ “
 “ 2, 11, “ 42—good.
 “ 2, 11, “ 50— “
 “ 2, 11, “ 59—excellent.
 “ 2, 11, “ 60—very good.
 “ 2, 11, “ 61— “ “
 “ 2, 11, “ 62—good.
 “ 2, 11, “ 63— “

Figs. 2, 11, and 66—good.
 “ 2, 11, “ 83—very good.
 “ 2, 11, “ 84—good.
 “ 2, 11, “ 89— “
 “ 2, 11, “ 93—excellent.
 “ 2, 11, “ 94—very good.
 “ 2, 11, “ 95— “ “
 “ 2, 11, “ 98— “ “
 “ 2, 11, “ 99—good.
 “ 2, 11, “ 100—very good.
 “ 2, 11, “ 107—good.
 “ 2, 11, “ 111— “
 “ 2, 11, “ 112—very good.
 “ 2, 11, “ 114—good.
 “ 2, 11, “ 115— “
 “ 2, 11, “ 116—very good.
 “ 2, 11, “ 123—good.
 “ 2, 11, “ 124— “
 “ 2, 11, “ 125—very good.
 “ 2, 11, “ 126—excellent.
 “ 2, 11, “ 133—good.

Figs. 2, 11, and 134 — good.
 " 2, 11, " 135 — excellent.
 " 2, 11, " 138 — " "
 " 2, 11, " 139 — very good.
 " 2, 11, " 140 — good.
 " 2, 11, " 143 — excellent.
 " 2, 11, " 145 — good.
 " 2, 11, " 147 — very good.

Figs. 2, 11, and 148 — excellent.
 " 2, 11, " 149 — very good.
 " 2, 11, " 150 — " "
 " 2, 11, " 151 — excellent.
 " 2, 11, " 154 — " "
 " 2, 11, " 155 — " "
 " 2, 11, " 156 — very good.
 " 2, 11, " 171 — " "

Yellow and Black.

Figs. 2, 12, and 18 — very good.
 " 2, 12, " 19 — good.
 " 2, 12, " 28 — very good.
 " 2, 12, " 29 — good.
 " 2, 12, " 30 — excellent.
 " 2, 12, " 31 — very good.
 " 2, 12, " 35 — good.
 " 2, 12, " 36 — very good.
 " 2, 12, " 37 — " "
 " 2, 12, " 42 — good.
 " 2, 12, " 57 — very good.
 " 2, 12, " 59 — " "
 " 2, 12, " 61 — " "
 " 2, 12, " 63 — good.
 " 2, 12, " 73 — very good.
 " 2, 12, " 76 — good.
 " 2, 12, " 81 — very good.
 " 2, 12, " 83 — " "
 " 2, 12, " 93 — good.
 " 2, 12, " 95 — very good.
 " 2, 12, " 96 — " "
 " 2, 12, " 100 — good.
 " 2, 12, " 112 — "

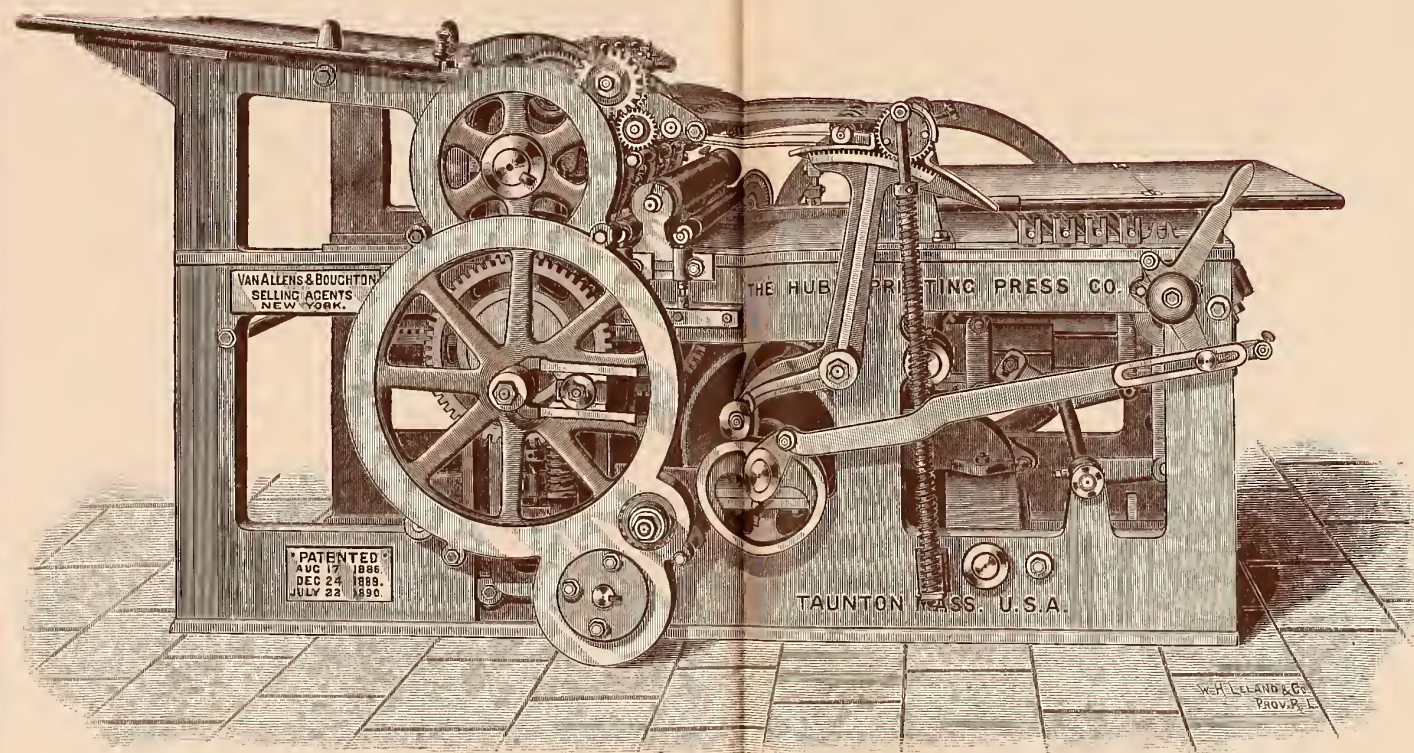
Figs. 2, 12, and 113 — good.
 " 2, 12, " 116 — " "
 " 2, 12, " 117 — " "
 " 2, 12, " 119 — " "
 " 2, 12, " 120 — " "
 " 2, 12, " 124 — very good.
 " 2, 12, " 125 — good.
 " 2, 12, " 126 — " "
 " 2, 12, " 133 — very good.
 " 2, 12, " 134 — " "
 " 2, 12, " 135 — excellent.
 " 2, 12, " 138 — " "
 " 2, 12, " 139 — " "
 " 2, 12, " 140 — very good.
 " 2, 12, " 143 — excellent.
 " 2, 12, " 145 — very good.
 " 2, 12, " 147 — " "
 " 2, 12, " 148 — excellent.
 " 2, 12, " 151 — very good.
 " 2, 12, " 154 — " "
 " 2, 12, " 155 — " "
 " 2, 12, " 156 — " "
 " 2, 12, " 171 — " "

The Huber Crank Movement Super Royal Jobber

THE BED AND CYLINDER are each driven by a crank, and there are no springs required to help reverse the motion of the bed. The whole movement is as simple and durable as an ordinary train of gears. We guarantee the movement to run perfectly smooth, and without a particle of jar at any point; to run faster and last longer than any other movement now on the market. With proper care there is not a single part that will give out or need repairing; and we want to call special attention to the fact that there are no cams, cam-gears, eccentrics, or any queer shaped parts about it, but that each and all of the parts are straight or round, and can be made in any first-class machine shop without special tools.

There is no lost motion between the bed and cylinder during the printing stroke, and the register is perfect at all speeds.

The bed is supported, under the line of impression, by four large rollers, journaled in stands which are fastened to a rigid box-stay that can not spring or give in the least degree.



Movement Patented July 22, 1890.

TWO OR THREE ROLLERS.

FOUR TRACKS.

BOX FRAME.

NO SPRINGS.

Front Delivery, Table Distribution.

Back Delivery, Table or Drum Distribution.

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THE cylinder never comes to a full stop when the press is in operation, but keeps moving slowly, when the bed is reversing, until the speed of the bed is equal, when it increases in unison with the bed. The sheet is taken by the grippers when the cylinder is moving slowly,—an important point in favor of perfect register.

Having no complicated cam or stop motions to get out of order or limit the speed of the press, we guarantee every machine to print twenty-two hundred sheets per hour, when properly fed, in perfect register and without jar or extra wear.

The cylinder can be tripped at the will of the feeder and up to the moment when the sheet is taken by the grippers.

The side-frames are of the box pattern, also, and every part of the machine is constructed with an eye to great strength and durability. The sheets are delivered in front of the cylinder, clean side to the fly, which is positive and noiseless in its action.

Yellow and Color No. 34.

Figs. 2, 34, and 28 — good.	Figs. 2, 34, and 111 — very good.
" 2, 34, " 30 — excellent.	" 2, 34, " 117 — " "
" 2, 34, " 32 — very good.	" 2, 34, " 119 — " "
" 2, 34, " 37 — " "	" 2, 34, " 125 — " "
" 2, 34, " 49 — " "	" 2, 34, " 133 — " "
" 2, 34, " 52 — " "	" 2, 34, " 134 — good.
" 2, 34, " 53 — good.	" 2, 34, " 135 — excellent.
" 2, 34, " 57 — excellent.	" 2, 34, " 139 — " "
" 2, 34, " 60 — very good.	" 2, 34, " 142 — very good.
" 2, 34, " 63 — " "	" 2, 34, " 148 — excellent.
" 2, 34, " 67 — excellent.	" 2, 34, " 149 — good.
" 2, 34, " 68 — very good.	" 2, 34, " 150 — " "
" 2, 34, " 76 — good.	" 2, 34, " 151 — very good.
" 2, 34, " 83 — excellent.	" 2, 34, " 155 — " "
" 2, 34, " 108 — " "	" 2, 34, " 171 — " "

Yellow and Color No. 36.

Figs. 2, 36, and 24 — very good.	Figs. 2, 36, and 83 — excellent.
" 2, 36, " 32 — " "	" 2, 36, " 85 — very good.
" 2, 36, " 37 — excellent.	" 2, 36, " 108 — excellent.
" 2, 36, " 49 — good.	" 2, 36, " 111 — very good.
" 2, 36, " 52 — very good.	" 2, 36, " 117 — " "
" 2, 36, " 53 — good.	" 2, 36, " 118 — good.
" 2, 36, " 57 — excellent.	" 2, 36, " 119 — very good.
" 2, 36, " 58 — very good.	" 2, 36, " 125 — " "
" 2, 36, " 60 — " "	" 2, 36, " 133 — " "
" 2, 36, " 63 — " "	" 2, 36, " 134 — " "
" 2, 36, " 67 — excellent.	" 2, 36, " 135 — excellent.
" 2, 36, " 68 — very good.	" 2, 36, " 137 — good.
" 2, 36, " 70 — " "	" 2, 36, " 139 — excellent.
" 2, 36, " 77 — " "	" 2, 36, " 142 — very good.
" 2, 36, " 82 — good.	" 2, 36, " 148 — excellent.

Figs. 2, 36, and 149—good.	Figs. 2, 36, and 155—very good.
" 2, 36, " 150—" "	" 2, 36, " 158—good.
" 2, 36, " 151—very good.	" 2, 36, " 171—very good.

Yellow and Color No. 52.

Figs. 2, 52, and 15—very good.	Figs. 2, 52, and 94—very good.
" 2, 52, " 17—good.	" 2, 52, " 95—good.
" 2, 52, " 30—very good.	" 2, 52, " 99—" "
" 2, 52, " 34—good.	" 2, 52, " 100—" "
" 2, 52, " 35—" "	" 2, 52, " 108—" "
" 2, 52, " 36—very good.	" 2, 52, " 110—" "
" 2, 52, " 37—excellent.	" 2, 52, " 111—very good.
" 2, 52, " 50—very good.	" 2, 52, " 116—" "
" 2, 52, " 53—good.	" 2, 52, " 125—" "
" 2, 52, " 57—very good.	" 2, 52, " 126—excellent.
" 2, 52, " 59—excellent.	" 2, 52, " 134—" "
" 2, 52, " 60—" "	" 2, 52, " 135—" "
" 2, 52, " 61—very good.	" 2, 52, " 138—" "
" 2, 52, " 62—good.	" 2, 52, " 139—" "
" 2, 52, " 63—very good.	" 2, 52, " 142—very good.
" 2, 52, " 67—" "	" 2, 52, " 143—excellent.
" 2, 52, " 68—good.	" 2, 52, " 148—" "
" 2, 52, " 77—" "	" 2, 52, " 150—very good.
" 2, 52, " 82—" "	" 2, 52, " 151—" "
" 2, 52, " 83—excellent.	" 2, 52, " 154—" "
" 2, 52, " 84—good.	" 2, 52, " 155—" "
" 2, 52, " 85—very good.	" 2, 52, " 158—" "
" 2, 52, " 93—excellent.	" 2, 52, " 171—" "

Yellow and Color No. 59.

Figs. 2, 59, and 49—very good.	Figs. 2, 59, and 57—very good.
" 2, 59, " 52—" "	" 2, 59, " 58—good.

Figs. 2, 59, and 83—very good.	Figs. 2, 59, and 142—very good.
" 2, 59, " 85—" "	" 2, 59, " 143—" "
" 2, 59, " 117—good.	" 2, 59, " 148—excellent.
" 2, 59, " 119—" "	" 2, 59, " 150—very good.
" 2, 59, " 134—excellent.	" 2, 59, " 154—" "

Yellow and Color No. 67.

Figs. 2, 67, and 17—very good.	Figs. 2, 67, and 73—very good.
" 2, 67, " 18—" "	" 2, 67, " 76—good.
" 2, 67, " 23—good.	" 2, 67, " 80—very good.
" 2, 67, " 27—" "	" 2, 67, " 81—excellent.
" 2, 67, " 28—" "	" 2, 67, " 89—very good.
" 2, 67, " 30—very good.	" 2, 67, " 94—good.
" 2, 67, " 31—good.	" 2, 67, " 95—" "
" 2, 67, " 32—very good.	" 2, 67, " 107—" "
" 2, 67, " 34—" "	" 2, 67, " 116—excellent.
" 2, 67, " 35—excellent.	" 2, 67, " 120—good.
" 2, 67, " 36—" "	" 2, 67, " 124—" "
" 2, 67, " 52—good.	" 2, 67, " 133—very good.
" 2, 67, " 60—" "	" 2, 67, " 140—" "
" 2, 67, " 62—very good.	" 2, 67, " 145—" "
" 2, 67, " 66—" "	" 2, 67, " 149—good.
" 2, 67, " 71—" "	" 2, 67, " 156—" "
" 2, 67, " 72—good.	" 2, 67, " 168—" "

Yellow and Color No. 81.

Figs. 2, 81, and 1—good.	Figs. 2, 81, and 11—excellent.
" 2, 81, " 3—very good.	" 2, 81, " 15—good.
" 2, 81, " 6—good.	" 2, 81, " 17—very good.
" 2, 81, " 7—" "	" 2, 81, " 18—" "

Figs. 2, 8I, and 24 — good.
 " 2, 8I, " 26 — "
 " 2, 8I, " 27 — very good.
 " 2, 8I, " 30 — " "
 " 2, 8I, " 31 — excellent.
 " 2, 8I, " 32 — very good.
 " 2, 8I, " 34 — good.
 " 2, 8I, " 35 — very good.
 " 2, 8I, " 36 — " "
 " 2, 8I, " 37 — excellent.
 " 2, 8I, " 42 — good.
 " 2, 8I, " 49 — excellent.
 " 2, 8I, " 52 — very good.
 " 2, 8I, " 53 — " "
 " 2, 8I, " 54 — good.
 " 2, 8I, " 57 — excellent.
 " 2, 8I, " 58 — very good.
 " 2, 8I, " 59 — excellent.
 " 2, 8I, " 60 — "
 " 2, 8I, " 61 — "
 " 2, 8I, " 62 — very good.
 " 2, 8I, " 63 — excellent.
 " 2, 8I, " 64 — very good.
 " 2, 8I, " 67 — excellent.
 " 2, 8I, " 68 — very good.
 " 2, 8I, " 70 — " "
 " 2, 8I, " 71 — " "
 " 2, 8I, " 76 — good.
 " 2, 8I, " 77 — very good.
 " 2, 8I, " 78 — good.
 " 2, 8I, " 80 — very good.
 " 2, 8I, " 82 — " "
 " 2, 8I, " 83 — excellent.
 " 2, 8I, " 84 — very good.
 " 2, 8I, " 93 — " "
 " 2, 8I, " 94 — good.

Figs. 2, 8I, and 95 — good.
 " 2, 8I, " 96 — excellent.
 " 2, 8I, " 98 — good.
 " 2, 8I, " 99 — very good.
 " 2, 8I, " 100 — " "
 " 2, 8I, " 101 — good.
 " 2, 8I, " 108 — very good.
 " 2, 8I, " 110 — good.
 " 2, 8I, " 111 — very good.
 " 2, 8I, " 112 — good.
 " 2, 8I, " 113 — very good.
 " 2, 8I, " 115 — " "
 " 2, 8I, " 116 — " "
 " 2, 8I, " 117 — " "
 " 2, 8I, " 119 — " "
 " 2, 8I, " 120 — good.
 " 2, 8I, " 121 — excellent.
 " 2, 8I, " 125 — "
 " 2, 8I, " 126 — "
 " 2, 8I, " 133 — good.
 " 2, 8I, " 134 — very good.
 " 2, 8I, " 135 — excellent.
 " 2, 8I, " 138 — very good.
 " 2, 8I, " 139 — excellent.
 " 2, 8I, " 140 — good.
 " 2, 8I, " 142 — very good.
 " 2, 8I, " 143 — " "
 " 2, 8I, " 144 — " "
 " 2, 8I, " 147 — " "
 " 2, 8I, " 148 — excellent.
 " 2, 8I, " 151 — very good.
 " 2, 8I, " 154 — good.
 " 2, 8I, " 155 — very good.
 " 2, 8I, " 156 — good.
 " 2, 8I, " 161 — very good.
 " 2, 8I, " 171 — " "

Yellow and Color No. 83.

Figs. 2, 83, and 15 — very good.	Figs. 2, 83, and 78 — good.
" 2, 83, " 16 — excellent.	" 2, 83, " 80 — very good.
" 2, 83, " 17 — very good.	" 2, 83, " 81 — " "
" 2, 83, " 18 — " "	" 2, 83, " 84 — good.
" 2, 83, " 27 — " "	" 2, 83, " 89 — very good.
" 2, 83, " 28 — " "	" 2, 83, " 94 — " "
" 2, 83, " 30 — " "	" 2, 83, " 95 — " "
" 2, 83, " 31 — " "	" 2, 83, " 100 — " "
" 2, 83, " 32 — " "	" 2, 83, " 107 — " "
" 2, 83, " 34 — " "	" 2, 83, " 112 — good.
" 2, 83, " 35 — " "	" 2, 83, " 114 — very good.
" 2, 83, " 36 — " "	" 2, 83, " 115 — excellent.
" 2, 83, " 49 — " "	" 2, 83, " 116 — " "
" 2, 83, " 50 — " "	" 2, 83, " 117 — very good.
" 2, 83, " 51 — excellent.	" 2, 83, " 123 — " "
" 2, 83, " 52 — very good.	" 2, 83, " 124 — excellent.
" 2, 83, " 59 — " "	" 2, 83, " 133 — very good.
" 2, 83, " 61 — good.	" 2, 83, " 134 — " "
" 2, 83, " 66 — " "	" 2, 83, " 138 — " "
" 2, 83, " 72 — " "	" 2, 83, " 140 — " "
" 2, 83, " 73 — very good.	" 2, 83, " 143 — " "
" 2, 83, " 76 — good.	" 2, 83, " 145 — good.
" 2, 83, " 77 — " "	" 2, 83, " 150 — " "

Yellow and Color No. 135.

Figs. 2, 135, and 1 — very good.	Figs. 2, 135, and 27 — very good.
" 2, 135, " 3 — " "	" 2, 135, " 28 — good.
" 2, 135, " 7 — " "	" 2, 135, " 30 — very good.
" 2, 135, " 8 — good.	" 2, 135, " 31 — " "
" 2, 135, " 11 — very good.	" 2, 135, " 32 — " "
" 2, 135, " 17 — good.	" 2, 135, " 34 — " "
" 2, 135, " 18 — very good.	" 2, 135, " 35 — " "
" 2, 135, " 23 — good.	" 2, 135, " 36 — excellent.

Figs. 2, 135, and 42—good.
 “ 2, 135, “ 43— “
 “ 2, 135, “ 49—very good.
 “ 2, 135, “ 52—good.
 “ 2, 135, “ 62—very good.
 “ 2, 135, “ 66— “ “
 “ 2, 135, “ 72—good.
 “ 2, 135, “ 73—very good.
 “ 2, 135, “ 76—good.
 “ 2, 135, “ 80—very good.
 “ 2, 135, “ 81—excellent.
 “ 2, 135, “ 89—good.
 “ 2, 135, “ 95—very good.
 “ 2, 135, “ 107—good.
 “ 2, 135, “ 112— “

Figs. 2, 135, and 113—good.
 “ 2, 135, “ 116—very good.
 “ 2, 135, “ 120—good.
 “ 2, 135, “ 121—very good.
 “ 2, 135, “ 123—good.
 “ 2, 135, “ 124—very good.
 “ 2, 135, “ 133— “ “
 “ 2, 135, “ 134—good.
 “ 2, 135, “ 140— “
 “ 2, 135, “ 141— “
 “ 2, 135, “ 145— “
 “ 2, 135, “ 149—very good.
 “ 2, 135, “ 151— “ “
 “ 2, 135, “ 156—good.
 “ 2, 135, “ 168— “

Yellow and Color No. 138.

Figs. 2, 138, and 6—very good.
 “ 2, 138, “ 11—excellent.
 “ 2, 138, “ 12—very good.
 “ 2, 138, “ 41— “ “
 “ 2, 138, “ 47—good.
 “ 2, 138, “ 49—excellent.
 “ 2, 138, “ 51—very good.
 “ 2, 138, “ 52— “ “
 “ 2, 138, “ 63—good.
 “ 2, 138, “ 71—very good.
 “ 2, 138, “ 77—good.

Figs. 2, 138, and 80—very good.
 “ 2, 138, “ 83—good.
 “ 2, 138, “ 117— “
 “ 2, 138, “ 121—very good.
 “ 2, 138, “ 134—good.
 “ 2, 138, “ 142—very good.
 “ 2, 138, “ 150— “ “
 “ 2, 138, “ 154— “ “
 “ 2, 138, “ 158—good.
 “ 2, 138, “ 161—very good.
 “ 2, 138, “ 171— “ “

Yellow and Color No. 148.

Figs. 2, 148, and 1—very good.
 “ 2, 148, “ 8— “ “

Figs. 2, 148, and 10—good.
 “ 2, 148, “ 11—very good.

Figs. 2, 148, and 12—good.
 “ 2, 148, “ 17—very good.
 “ 2, 148, “ 18— “ “
 “ 2, 148, “ 19—good.
 “ 2, 148, “ 20— “
 “ 2, 148, “ 23— “
 “ 2, 148, “ 27—very good.
 “ 2, 148, “ 28— “ “
 “ 2, 148, “ 29—good.
 “ 2, 148, “ 30—very good.
 “ 2, 148, “ 31— “ “
 “ 2, 148, “ 32— “ “
 “ 2, 148, “ 34— “ “
 “ 2, 148, “ 35—excellent.
 “ 2, 148, “ 36— “
 “ 2, 148, “ 49—very good.
 “ 2, 148, “ 51— “ “
 “ 2, 148, “ 52— “ “
 “ 2, 148, “ 62— “ “
 “ 2, 148, “ 66—good.
 “ 2, 148, “ 71— “
 “ 2, 148, “ 72— “
 “ 2, 148, “ 73—excellent.
 “ 2, 148, “ 76—very good.

Figs. 2, 148, and 77—very good.
 “ 2, 148, “ 80— “ “
 “ 2, 148, “ 81—excellent.
 “ 2, 148, “ 84—good.
 “ 2, 148, “ 89— “
 “ 2, 148, “ 95—very good.
 “ 2, 148, “ 107— “ “
 “ 2, 148, “ 112—good.
 “ 2, 148, “ 113— “
 “ 2, 148, “ 115—very good.
 “ 2, 148, “ 116—excellent.
 “ 2, 148, “ 119—good.
 “ 2, 148, “ 120— “
 “ 2, 148, “ 123—very good.
 “ 2, 148, “ 124— “ “
 “ 2, 148, “ 133—good.
 “ 2, 148, “ 134— “
 “ 2, 148, “ 140— “
 “ 2, 148, “ 145— “
 “ 2, 148, “ 146— “
 “ 2, 148, “ 149— “
 “ 2, 148, “ 150— “
 “ 2, 148, “ 156—very good.
 “ 2, 148, “ 168—good.

In the following lists of three-color combinations the principal color is blue.

Blue and Orange.

Figs. 3, 4, and 11—excellent.
 “ 3, 4, “ 12—very good.
 “ 3, 4, “ 32—good.
 “ 3, 4, “ 33—very good.
 “ 3, 4, “ 34— “ “

Figs. 3, 4, and 35—very good.
 “ 3, 4, “ 36— “ “
 “ 3, 4, “ 39— “ “
 “ 3, 4, “ 52— “ “
 “ 3, 4, “ 53—good.

Figs. 3, 4, and 54 — good.
 " 3, 4, " 68 — "
 " 3, 4, " 77 — very good.
 " 3, 4, " 79 — " "
 " 3, 4, " 80 — excellent.
 " 3, 4, " 81 — very good.
 " 3, 4, " 108 — good.
 " 3, 4, " 109 — very good.
 " 3, 4, " 114 — " "
 " 3, 4, " 115 — good.
 " 3, 4, " 119 — "

Figs. 3, 4, and 122 — very good.
 " 3, 4, " 127 — " "
 " 3, 4, " 131 — " "
 " 3, 4, " 132 — good.
 " 3, 4, " 135 — excellent.
 " 3, 4, " 136 — very good.
 " 3, 4, " 148 — " "
 " 3, 4, " 151 — good.
 " 3, 4, " 152 — "
 " 3, 4, " 158 — very good.
 " 3, 4, " 171 — good.

Blue and Vermilion.

Figs. 3, 10, and 11 — excellent.
 " 3, 10, " 12 — very good.
 " 3, 10, " 33 — " "
 " 3, 10, " 34 — " "
 " 3, 10, " 41 — " "
 " 3, 10, " 47 — good.
 " 3, 10, " 49 — very good.
 " 3, 10, " 50 — " "
 " 3, 10, " 51 — good.
 " 3, 10, " 52 — very good.
 " 3, 10, " 55 — good.
 " 3, 10, " 68 — "
 " 3, 10, " 71 — excellent.
 " 3, 10, " 77 — good.
 " 3, 10, " 79 — very good.
 " 3, 10, " 80 — good.

Figs. 3, 10, and 107 — very good.
 " 3, 10, " 109 — " "
 " 3, 10, " 114 — good.
 " 3, 10, " 117 — "
 " 3, 10, " 118 — "
 " 3, 10, " 119 — very good.
 " 3, 10, " 121 — " "
 " 3, 10, " 122 — " "
 " 3, 10, " 123 — good.
 " 3, 10, " 127 — very good.
 " 3, 10, " 131 — " "
 " 3, 10, " 135 — excellent.
 " 3, 10, " 151 — very good.
 " 3, 10, " 157 — " "
 " 3, 10, " 158 — good.
 " 3, 10, " 164 — "

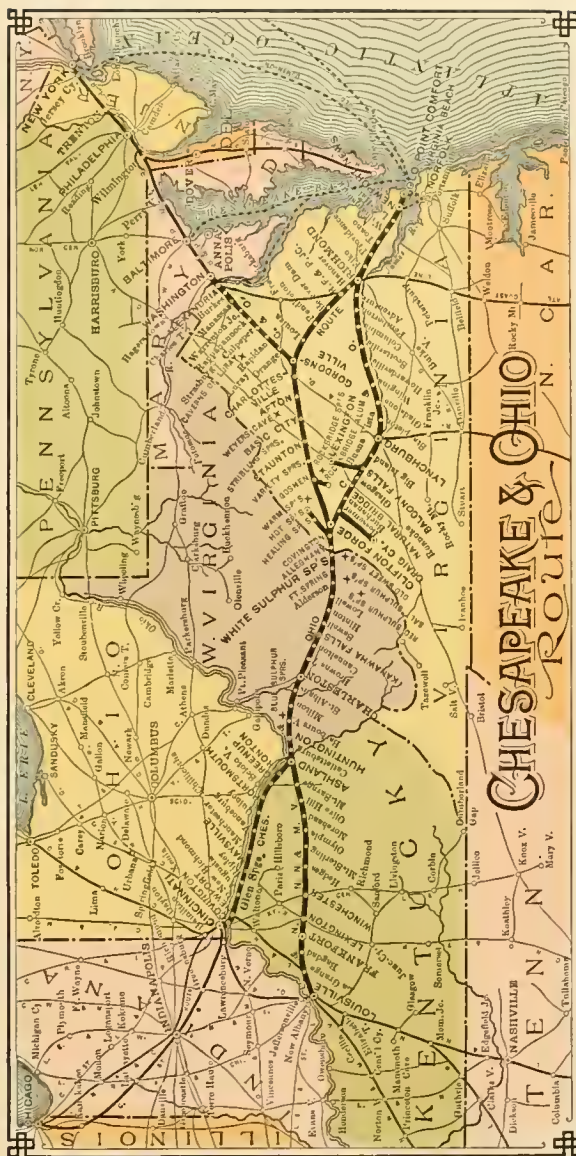
Blue and Gray.

Figs. 3, 11, and 12 — very good.
 " 3, 11, " 13 — excellent.

Figs. 3, 11, and 14 — very good.
 " 3, 11, " 17 — " "

Specimen of Map Printed in Black and Three Tints.

Yellow. Yellow on Blue. Blue. Pink on Blue. Pink. Yellow on Pink. Yellow.



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The black was printed first, and then the blue, pink, and yellow tints, in the order named.

Figs. 3, 11, and 18 — excellent.
 " 3, 11, " 19 — "
 " 3, 11, " 20 — "
 " 3, 11, " 23 — good.
 " 3, 11, " 26 — "
 " 3, 11, " 27 — very good.
 " 3, 11, " 28 — " "
 " 3, 11, " 29 — excellent.
 " 3, 11, " 30 — "
 " 3, 11, " 31 — very good.
 " 3, 11, " 33 — " "
 " 3, 11, " 34 — excellent.
 " 3, 11, " 35 — "
 " 3, 11, " 36 — "
 " 3, 11, " 39 — very good.
 " 3, 11, " 41 — good.
 " 3, 11, " 42 — "
 " 3, 11, " 43 — "
 " 3, 11, " 44 — very good.
 " 3, 11, " 48 — " "
 " 3, 11, " 52 — " "
 " 3, 11, " 55 — good.
 " 3, 11, " 56 — very good.
 " 3, 11, " 62 — good.
 " 3, 11, " 66 — "
 " 3, 11, " 68 — "
 " 3, 11, " 71 — very good.
 " 3, 11, " 72 — good.
 " 3, 11, " 73 — excellent.

Figs. 3, 11, and 76 — very good.
 " 3, 11, " 78 — good.
 " 3, 11, " 80 — very good.
 " 3, 11, " 81 — excellent.
 " 3, 11, " 89 — very good.
 " 3, 11, " 95 — good.
 " 3, 11, " 107 — very good.
 " 3, 11, " 112 — good.
 " 3, 11, " 113 — "
 " 3, 11, " 115 — very good.
 " 3, 11, " 116 — " "
 " 3, 11, " 120 — good.
 " 3, 11, " 123 — "
 " 3, 11, " 124 — very good.
 " 3, 11, " 127 — good.
 " 3, 11, " 131 — "
 " 3, 11, " 133 — very good.
 " 3, 11, " 135 — excellent.
 " 3, 11, " 136 — very good.
 " 3, 11, " 139 — " "
 " 3, 11, " 141 — good.
 " 3, 11, " 145 — very good.
 " 3, 11, " 146 — good.
 " 3, 11, " 149 — "
 " 3, 11, " 151 — very good.
 " 3, 11, " 152 — good.
 " 3, 11, " 155 — "
 " 3, 11, " 163 — "
 " 3, 11, " 169 — "

Blue and Black.

Figs. 3, 12, and 13 — excellent.
 " 3, 12, " 14 — very good.
 " 3, 12, " 17 — " "

Figs. 3, 12, and 18 — very good.
 " 3, 12, " 19 — excellent.
 " 3, 12, " 20 — "

Figs. 3, 12, and 28 — very good.
 " 3, 12, " 29 — excellent.
 " 3, 12, " 30 — "
 " 3, 12, " 31 — very good.
 " 3, 12, " 32 — good.
 " 3, 12, " 35 — "
 " 3, 12, " 36 — very good.
 " 3, 12, " 39 — " "
 " 3, 12, " 41 — " "
 " 3, 12, " 44 — " "
 " 3, 12, " 48 — " "
 " 3, 12, " 49 — good.
 " 3, 12, " 52 — very good.
 " 3, 12, " 55 — good.
 " 3, 12, " 56 — very good.
 " 3, 12, " 62 — " "
 " 3, 12, " 66 — good.
 " 3, 12, " 68 — "
 " 3, 12, " 71 — very good.
 " 3, 12, " 72 — good.
 " 3, 12, " 73 — excellent.
 " 3, 12, " 76 — very good.
 " 3, 12, " 78 — " "

Figs. 3, 12, and 80 — good.
 " 3, 12, " 81 — very good.
 " 3, 12, " 89 — good.
 " 3, 12, " 95 — "
 " 3, 12, " 107 — "
 " 3, 12, " 116 — "
 " 3, 12, " 120 — "
 " 3, 12, " 124 — very good.
 " 3, 12, " 133 — " "
 " 3, 12, " 135 — " "
 " 3, 12, " 136 — " "
 " 3, 12, " 139 — " "
 " 3, 12, " 140 — " "
 " 3, 12, " 141 — good.
 " 3, 12, " 145 — very good.
 " 3, 12, " 149 — good.
 " 3, 12, " 151 — very good.
 " 3, 12, " 152 — good.
 " 3, 12, " 155 — very good.
 " 3, 12, " 156 — " "
 " 3, 12, " 157 — " "
 " 3, 12, " 163 — good.
 " 3, 12, " 169 — "

Blue and Color No. 36.

Figs. 3, 36, and 14 — very good.
 " 3, 36, " 30 — good.
 " 3, 36, " 31 — very good.
 " 3, 36, " 32 — " "
 " 3, 36, " 39 — " "
 " 3, 36, " 41 — " "
 " 3, 36, " 44 — good.
 " 3, 36, " 47 — very good.
 " 3, 36, " 48 — good.

Figs. 3, 36, and 49 — good.
 " 3, 36, " 50 — very good.
 " 3, 36, " 52 — " "
 " 3, 36, " 55 — " "
 " 3, 36, " 56 — good.
 " 3, 36, " 68 — very good.
 " 3, 36, " 71 — excellent.
 " 3, 36, " 77 — very good.
 " 3, 36, " 78 — " "

Figs. 3, 36, and 79 — very good.
 " 3, 36, " 80 — " "
 " 3, 36, " 81 — excellent.
 " 3, 36, " 108 — very good.
 " 3, 36, " 109 — " "
 " 3, 36, " 113 — good.
 " 3, 36, " 114 — very good.
 " 3, 36, " 118 — " "
 " 3, 36, " 119 — " "
 " 3, 36, " 121 — " "
 " 3, 36, " 127 — good.

Figs. 3, 36, and 133 — very good.
 " 3, 36, " 135 — excellent.
 " 3, 36, " 136 — very good.
 " 3, 36, " 139 — " "
 " 3, 36, " 152 — good.
 " 3, 36, " 159 — "
 " 3, 36, " 162 — "
 " 3, 36, " 164 — "
 " 3, 36, " 169 — very good.
 " 3, 36, " 171 — " "
 " 3, 36, " 176 — good.

Blue and Color No. 52.

Figs. 3, 52, and 13 — very good.
 " 3, 52, " 17 — good.
 " 3, 52, " 18 — very good.
 " 3, 52, " 19 — " "
 " 3, 52, " 20 — " "
 " 3, 52, " 27 — good.
 " 3, 52, " 28 — very good.
 " 3, 52, " 29 — " "
 " 3, 52, " 30 — excellent.
 " 3, 52, " 31 — very good.
 " 3, 52, " 32 — " "
 " 3, 52, " 34 — " "
 " 3, 52, " 35 — " "
 " 3, 52, " 36 — " "
 " 3, 52, " 44 — good.
 " 3, 52, " 48 — very good.
 " 3, 52, " 50 — good.
 " 3, 52, " 56 — "
 " 3, 52, " 62 — "
 " 3, 52, " 66 — "
 " 3, 52, " 68 — "

Figs. 3, 52, and 72 — very good.
 " 3, 52, " 73 — excellent.
 " 3, 52, " 76 — very good.
 " 3, 52, " 80 — good.
 " 3, 52, " 81 — very good.
 " 3, 52, " 89 — " "
 " 3, 52, " 95 — good.
 " 3, 52, " 107 — "
 " 3, 52, " 108 — "
 " 3, 52, " 112 — very good.
 " 3, 52, " 113 — " "
 " 3, 52, " 115 — good.
 " 3, 52, " 116 — very good.
 " 3, 52, " 120 — " "
 " 3, 52, " 121 — good.
 " 3, 52, " 123 — "
 " 3, 52, " 124 — very good.
 " 3, 52, " 127 — good.
 " 3, 52, " 133 — very good.
 " 3, 52, " 135 — excellent.
 " 3, 52, " 140 — very good.

Figs. 3, 52, and 145 — very good.	Figs. 3, 52, and 155 — very good.
" 3, 52, " 146 — good.	" 3, 52, " 156 — " "
" 3, 52, " 147 — "	" 3, 52, " 163 — " "
" 3, 52, " 149 — very good.	" 3, 52, " 168 — " "
" 3, 52, " 151 — " "	" 3, 52, " 171 — " "

Blue and Color No. 73.

Figs. 3, 73, and 34 — very good.	Figs. 3, 73, and 114 — very good.
" 3, 73, " 41 — " "	" 3, 73, " 115 — " "
" 3, 73, " 47 — " "	" 3, 73, " 117 — good.
" 3, 73, " 49 — " "	" 3, 73, " 118 — very good.
" 3, 73, " 50 — " "	" 3, 73, " 119 — " "
" 3, 73, " 51 — " "	" 3, 73, " 121 — good.
" 3, 73, " 52 — excellent.	" 3, 73, " 122 — very good.
" 3, 73, " 55 — good.	" 3, 73, " 123 — good.
" 3, 73, " 68 — very good.	" 3, 73, " 131 — "
" 3, 73, " 71 — excellent.	" 3, 73, " 135 — excellent.
" 3, 73, " 79 — very good.	" 3, 73, " 151 — very good.
" 3, 73, " 80 — good.	" 3, 73, " 155 — " "
" 3, 73, " 81 — "	" 3, 73, " 158 — good.
" 3, 73, " 104 — very good.	" 3, 73, " 164 — "
" 3, 73, " 108 — " "	" 3, 73, " 171 — very good.
" 3, 73, " 110 — " "	" 3, 73, " 172 — good.

Blue and Color No. 81.

Figs. 3, 81, and 13 — good.	Figs. 3, 81, and 34 — very good.
" 3, 81, " 14 — very good.	" 3, 81, " 39 — " "
" 3, 81, " 29 — good.	" 3, 81, " 49 — " "
" 3, 81, " 30 — very good.	" 3, 81, " 52 — good.
" 3, 81, " 31 — good.	" 3, 81, " 53 — "
" 3, 81, " 32 — very good.	" 3, 81, " 68 — very good.
" 3, 81, " 33 — " "	" 3, 81, " 73 — " "

Figs. 3, 81, and 77 — very good.
 " 3, 81, " 79 — " "
 " 3, 81, " 104 — good.
 " 3, 81, " 108 — very good.
 " 3, 81, " 109 — " "
 " 3, 81, " 110 — good.
 " 3, 81, " 112 — "
 " 3, 81, " 114 — excellent.
 " 3, 81, " 115 — very good.
 " 3, 81, " 116 — " "
 " 3, 81, " 117 — " "
 " 3, 81, " 118 — " "
 " 3, 81, " 119 — " "
 " 3, 81, " 121 — good.
 " 3, 81, " 122 — very good.
 " 3, 81, " 127 — " "
 " 3, 81, " 131 — " "

Figs. 3, 81, and 133 — very good.
 " 3, 81, " 135 — excellent.
 " 3, 81, " 136 — very good.
 " 3, 81, " 139 — excellent.
 " 3, 81, " 140 — good.
 " 3, 81, " 141 — "
 " 3, 81, " 145 — very good.
 " 3, 81, " 146 — good.
 " 3, 81, " 149 — "
 " 3, 81, " 151 — very good.
 " 3, 81, " 152 — good.
 " 3, 81, " 155 — very good.
 " 3, 81, " 156 — good.
 " 3, 81, " 157 — "
 " 3, 81, " 158 — "
 " 3, 81, " 169 — very good.
 " 3, 81, " 171 — " "

The following is a list of excellent three-color combinations taken from the mixed colors on Plates 2 to 21, inclusive.

Figs. 17, 41, and 135 — excellent.
 " 17, 44, " 135 — "
 " 17, 52, " 135 — "
 " 17, 71, " 135 — "
 " 17, 78, " 135 — "
 " 17, 81, " 135 — "
 " 34, 44, " 83 — "
 " 34, 44, " 139 — "
 " 34, 44, " 142 — "
 " 34, 44, " 148 — "
 " 34, 73, " 83 — "
 " 34, 78, " 83 — "

Figs. 34, 78, and 139 — excellent.
 " 34, 78, " 142 — "
 " 34, 78, " 148 — "
 " 34, 81, " 60 — "
 " 34, 81, " 67 — "
 " 34, 81, " 83 — "
 " 34, 81, " 135 — "
 " 34, 81, " 139 — "
 " 34, 81, " 142 — "
 " 34, 81, " 148 — "
 " 36, 41, " 60 — "
 " 36, 41, " 67 — "

Figs. 36, 41, and 135—excellent.

"	36,	41,	"	139—	"
"	36,	41,	"	148—	"
"	36,	44,	"	60—	"
"	36,	44,	"	83—	"
"	36,	44,	"	110—	"
"	36,	44,	"	139—	"
"	36,	44,	"	142—	"
"	36,	44,	"	148—	"
"	36,	52,	"	60—	"
"	36,	52,	"	67—	"
"	36,	52,	"	83—	"
"	36,	52,	"	110—	"
"	36,	52,	"	135—	"
"	36,	52,	"	139—	"
"	36,	52,	"	142—	"
"	36,	52,	"	148—	"
"	36,	71,	"	60—	"
"	36,	71,	"	67—	"
"	36,	71,	"	83—	"
"	36,	71,	"	110—	"
"	36,	71,	"	135—	"
"	36,	71,	"	139—	"
"	36,	71,	"	142—	"
"	36,	71,	"	148—	"
"	36,	78,	"	60—	"
"	36,	78,	"	67—	"
"	36,	78,	"	83—	"
"	36,	78,	"	135—	"
"	36,	78,	"	139—	"
"	36,	78,	"	142—	"
"	36,	78,	"	148—	"
"	36,	81,	"	60—	"
"	36,	81,	"	67—	"
"	36,	81,	"	83—	"
"	36,	81,	"	135—	"

Figs. 36, 81, and 139—excellent.

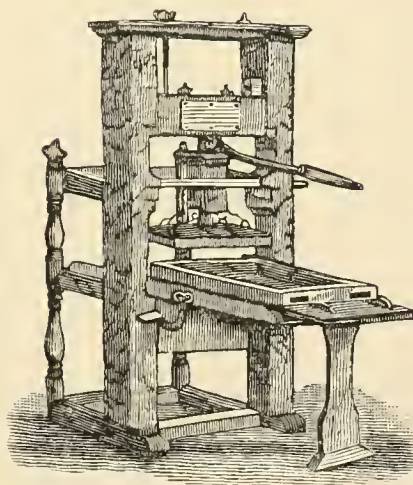
"	36,	81,	"	142—	"
"	36,	81,	"	148—	"
"	41,	94,	"	148—	"
"	41,	95,	"	148—	"
"	41,	115,	"	148—	"
"	41,	116,	"	148—	"
"	41,	147,	"	148—	"
"	44,	94,	"	148—	"
"	44,	95,	"	148—	"
"	44,	115,	"	148—	"
"	44,	116,	"	148—	"
"	44,	135,	"	140—	"
"	44,	135,	"	145—	"
"	44,	135,	"	149—	"
"	44,	135,	"	156—	"
"	44,	147,	"	148—	"
"	45,	59,	"	73—	"
"	45,	73,	"	143—	"
"	52,	94,	"	148—	"
"	52,	95,	"	148—	"
"	52,	115,	"	148—	"
"	52,	116,	"	148—	"
"	52,	147,	"	148—	"
"	59,	73,	"	75—	"
"	59,	73,	"	83—	"
"	59,	73,	"	142—	"
"	71,	94,	"	148—	"
"	71,	95,	"	148—	"
"	71,	115,	"	148—	"

Figs. 71, 147, and 148—excellent.

"	73,	75,	"	143—	"
"	73,	83,	"	138—	"
"	73,	83,	"	143—	"
"	73,	142,	"	143—	"
"	78,	94,	"	148—	"
"	78,	95,	"	148—	"

Figs. 78, 115, and 148—excellent.

"	78,	116,	"	148—	"
"	78,	147,	"	148—	"
"	81,	94,	"	148—	"
"	81,	95,	"	148—	"
"	81,	115,	"	148—	"
"	81,	116,	"	148—	"
"	81,	147,	"	148—	"





A Few Hints on Job Composition.



IN the composition of display work of any kind, there are two things which the printer should always keep in mind—*Harmony of Type Faces*, and *Harmony of Proportion*.

By *Harmony of Type Faces*, we mean that when more than one character of letter is used in a job, they should be selected with a view to producing a harmonious *contrast* of face—that is, there should be a *decided* difference in character but not a *violent* difference. For example, in the card below, we

ORIGINAL IDEAS,
DIRECTOR.

SEMPER PARATUS,
OPERATOR.

GOOD WORK & Co.

RECOGNIZE THE FACT THAT

THE BEST IS THE CHEAPEST

IN THE BEGINNING AND MIDDLE
• • AS WELL AS IN THE END • •

CINCINNATI, OHIO, U. S. A.

TELEPHONE 161.

NEVADA BUILDING.

have used one style of letter for the main lines and for the sake of contrast of face, have used a roman letter for the balance of the card.

Harmony of Proportion is produced when a job is so constructed that all the borders, panels, lines of type, etc., of which it is composed, bear a proper proportion to one another in heft, height, and length, and are located so as to produce a nice balance—the whole being properly proportioned to the size of the sheet or card upon which it is to be printed.

So then it may be said that when a job shows a *harmony of type faces*, and at the same time a *harmony of proportion* in all its parts, it is a very perfect specimen of the compositor's art.

When it is possible to set the whole of a job in the different sizes of one style of letter without producing a disharmony of proportion—one of the best results in job composition is attained. For example, see Plates 43, 49, 61, 80, and 88. This harmony in type faces bears the same relation to type, that the harmony of scale does to colors; for example, see Plate 80, which was set in different sizes of one letter, and the borders at top and bottom were printed in different tones of one color; the balance of the page was printed in two tones of another color.

When a fancy letter or one that is peculiar in character is used for the main display lines of a job, it is always in good taste to use a plain roman or *gothic letter (or sometimes both) for the balance of the matter. The gothic and roman letters bear the same relation to type faces that gray does to colors; gray is a neutral color, and can be used with any other color without producing a disharmony. So it is with the gothic and roman letters; they can be used with any other letter without producing a bad effect. This rule also applies to any plain letter in which

*The type known as gothic, in the United States, is composed of plain lines, and is the simplest in form of any type made.

the gothic or roman character predominates. For example, see Plates 47, 48, 49, 53, 56, 57, 65, and 67.

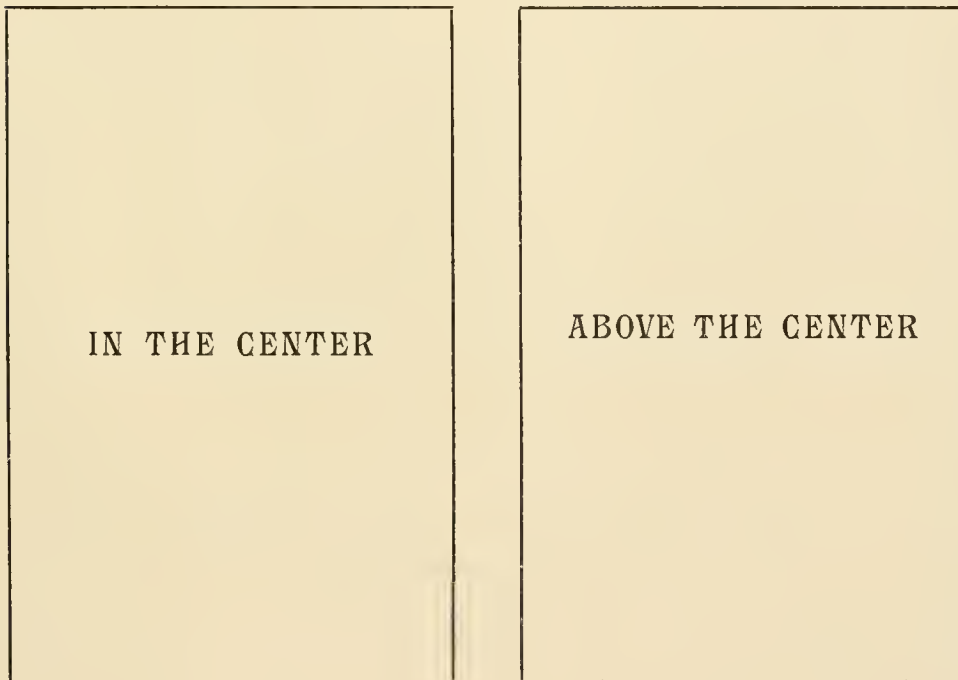
It is not in good taste to place near together in one job, two lines of letters between which there is a *violent* difference in form or character; it is always best to avoid extremes in the selection of different kinds of type for display lines. The card following is a good illustration of what printers ought to avoid. It will be observed that there is a violent contrast in form between the two main lines, while the character of the letters is the same; and a violent contrast in both form and character between the letters in the business line and the letters in the street line; and also between the letters in the street line and the letters in the city line.

UNO I. NEVERTHINK. <i>Estimator.</i>	THAT'S GOOD'NOUGH, <i>Operator.</i>
POOR WORK & CO., <i>Artistic</i>	
BLACKSMITHS AND SHOEMAKERS,	
<i>Batchworkman St.,</i>	
We use TELEPHONE next door.	PORKOPOLIS.

It is not in good taste to use a very extended letter for a narrow title page; or a very condensed letter for an oblong page. To get the best result, the letters and the page should be very nearly the same in proportion. If possible, the most

important line or panel should be located between three and five-tenths of the full length of the page from the top. It will sometimes be found that, on account of the nature or quantity of the matter, this suggestion can not be followed. A perfectly shaped egg, viewed as represented on the following page, is a splendid illustration of the form of a perfect title page.

When a single line of type is to occupy the center of a page, it should be placed a little above the actual center; otherwise, if placed exactly in the center, it will appear to be below the center. For example, see illustrations below.



This rule will also apply to any amount of type matter, ornaments, panels, etc., which are intended to occupy the center of a page or panel.

A SKETCH
OF
TWO TYPE TINKERS

BY
PETER PICA PIGH,
AUTHOR OF "ANY COLOR SO'TS RED, OR THE PRANKS
OF PAT THE PASTY PRESSMAN."



THE NEVER ESTIMATE COST CO.
GUESSERS,
SWINECINNATI, OHIO.
1892

In the composition of high-class display work, when it is possible, the letters in a line of type should be spaced so that each word will show an even distribution of color—that is, the body of each word should approach as nearly as possible to the even sweep of the painter's brush. See example below.

LAWYER SKINNIM

NOT SPACED.

LAWYER SKINNIM

SPACED.

Sometimes the combination of certain letters makes it impossible for us to get a very even distribution of color by spacing; but we can always improve the appearance of the line by so doing; see following example:

MALTJUICE

NOT SPACED.

MALTJUICE

SPACED.

The letters which cause the uneven appearance of lines are A, F, J, L, P, T, V, W and Y. In some job types this unevenness is overcome to a great extent by some of these letters being mortised or by all the other letters not named being cast on bodies somewhat wider than the face.



A Few Hints on Printing Presses, Rollers, Inks, and Papers.



TO do good presswork one must have good presses, ink, and rollers. If a cylinder press, the tympan should be made of thin, hard press-boards held firmly to the cylinder by a sheet of fine muslin, and on top of the muslin there should be drawn a sheet of fine, heavy manilla paper; on top of this there should be not to exceed two or three sheets of thin book paper of the best quality. When the tympan is so constructed its surface should be a little below the surface of the cylinder bearers, so that when the over-lays are pasted in their proper places on the tympan, and a sheet of fine manilla paper drawn over the whole, the surface of the tympan will then be exactly on a line with the surface of the bearers on the cylinder. A tympan made up in this manner is specially suitable for a high class of job and illustrated catalogue work.

The platen of a job press should be so adjusted, that when the tympan is made up of two sheets of fine three-ply bristol, covered with three or four sheets of thin manilla or book paper, it is then in proper condition for printing delicate scripts and other light-face letters. For heavier forms it will, of course, be necessary to add more sheets of paper and sometimes an extra card. The tympan must always be drawn as tight as possible to insure good work.

A roller when in the best condition for taking up the ink and freely giving it off again, should be firmly elastic, and should feel tacky when the hand is gently pressed upon its surface; at the same time, if the hand is moved rapidly along its surface, it should feel smooth and polished as if it was not very tacky. A form roller should be nicely adjusted so that it will be evenly pressed by the vibrator, along its full length, without flattening its surface; at the same time it should firmly but evenly press the face of the form without depositing any ink below the actual face of the type, cuts, etc., contained in the form.

Printing ink should always be adapted to the surface upon which it is to be stamped. If the paper is hard and smooth, then the ink should be somewhat stiff; but if it is soft and rough, then the ink should be comparatively thin. Black inks require less impression to make them adhere properly to the surface of paper than any of the colors; the reason being that the coloring matter of which the blacks are made, is generally composed of much finer particles than the colored inks; for this reason very fine half-tone and wood engravings can be printed much cleaner and sharper with black than with any colored ink.

Sometimes it will be found that certain heavy-bodied colors, such as vermilion, orange, etc., will cake on the form and rollers; the reason for this is generally because the varnish in the ink is not quite strong enough to hold the coloring matter, which is very heavy. This trouble can often be overcome by adding a little medium varnish to the ink. Boiled linseed oil is one of the best mediums there is for reducing inks, when a little too stiff for printing upon some papers. It will sometimes be found, however, that linseed oil will not answer the purpose; for instance, we have tried to reduce certain inks which had become somewhat hard, and found that the oil merely separated the hard inks into little buttery masses which could not be united nor reduced to an even con-

sistency for working. By adding a little varnish we soon had the inks in excellent condition for printing.

Very often it will be found that a job is to be handled soon after coming from the press. In such cases setting-off and smearing can sometimes be avoided. For example, say the job is to be printed in medium blue ink; mix one part ultramarine blue, one part bronze blue, and about two parts zinc white; the result will be a good blue which will work well and dry quickly. Any mixture of inks in which zinc white predominates will work well and dry quickly, without the printer being annoyed by the sheets setting-off.

It is sometimes hard to make an ultramarine blue, a violet, or a purple ink print smoothly upon some papers; the best result is obtained with these inks when they are printed on an unsized paper; the colors will invariably lay smoother and look much better than when printed on sized paper.

In bronze work, the best result is generally obtained when a fine writing paper is used. In the use of enameled or coated papers, the printer will frequently be troubled by the fact that after the work is completed the bronze powder will rub off at the slightest touch; the reason for this is, the greater part of the sizing does not remain on the surface, but, instead, it goes through the enamel or coating, to the body of the paper, leaving the powder to come off when it is touched. This trouble can be overcome by printing the form first in the sizing and then, when dry, running the work through the press a second time and applying the bronze powder at the last printing. The first printing is for the purpose of filling the paper so that the size will remain on the surface in the second printing. When paper is sized or properly filled, so that the size when printed will remain on the surface, there will then be no danger of the powder coming off.

In printing half-tone and fine wood engravings, the best result will be reached when a fine enameled book paper is used. A more

perfect *surface* impression can be obtained on this paper than upon any other. By examining impressions of a cut upon different kinds of paper with a magnifying glass, it will be plainly seen that the lines are thinner and sharper on the enameled paper than upon any other. The reason for this is that the instant the cut comes into contact with the paper, all the surplus varnish or oil in the ink goes through the enamel, instead of remaining on the surface and being spread by the pressure of the cut, as it will on a hard, sized paper.





Description of Head and Tail Pieces and Initial Letters.



THE head-piece on page 3 was printed in three of the light tones of color No. 80, and the tail-piece on same page was printed in color No. 64 and two of its light tones; both are excellent examples of *the harmony of Scale*.

The initial B on page 5 was printed in tint No. 163 and black. The initial P on page 11 was printed in a gray tint and black.

The head piece on page 13 was first printed in tint No. 170, then in tint No. 159 and then in color No. 81—a good example of *the harmony of relative colors*. The initial F on same page was first printed in a pale gold bronze, then in a half-tone red, then in color No. 41, and then in black.

The head-piece on page 22 was printed in color No. 51 and its tint No. 164, the tint being printed first. The initial P on same page was first printed in gold bronze, then in a blue, then in an orange red, and then in black.

The tail-piece on page 32 was printed in color No. 71.

The head-piece on page 33 was first printed in tint No. 152, and then in color No. 35—a rich combination. The initial W on same page was first printed in silver bronze, then in a half-tone blue, then in a half-tone rose-lake, and then in black.

The head-piece on page 38 was first printed in tint No. 176, then in tint No. 169, and then in color No. 73. The initial W on

same page was first printed in gold bronze, then in green, then in purple, and then in black.

The head-piece on page 60 was first printed in tint No. 166 and then in black. The initial T on same page was first printed in tint No. 162 and then in black.

The head-piece and initial W on page 97 were first printed in an orange tint and then in black.

The head-piece and initial I on page 124 were first printed in a flesh pink and then in black.

The head-piece and initial T on page 130 were first printed in tint No. 165 and then in black.

The head-piece and initial T on page 134 were first printed in a green tint and then in black.

The head-piece on page 136 was printed in color No. 71. The initial on same page was printed in same color and then in black.





A Simple Method of Embossing.



THE different specimens of embossed work shown in this book were done in the following manner: In the first place, the embossing plate or border was locked in a chase ready for press. Then the form was "made ready" so that the impression showed firmly and evenly on the tympan, without the use of ink. Then a paste was made of Barytes powder and a good flour paste thoroughly mixed in equal proportions, the flour paste being free from lumps. Then the face of the form was well oiled, so that when the impression was taken the pasted sheet would not stick to it. Then the paste was spread evenly and thinly over the impression on the tympan with a stiff brush, and a sheet of manilla tissue was laid over this, and an impression taken upon it. Then this impression was again coated thinly with the paste, care being taken to put the paste where it was most needed, and another sheet of the tissue was added. This operation was repeated until every part of the work was embossed as evenly as the plate or border would allow. Then the matrix so made was dried with a hot iron or a piece of burning paper; in the mean time, at intervals of a minute or two, a half dozen impressions were taken on the tympan so that the matrix would not warp or shrink out of position while being dried. After the matrix was thoroughly hard and dry, the

guides were set and the sheets run through at a moderate rate of speed. In embossing the border on Plate 56 it was also printed in a blue-gray tint over a gray tint at the same time. Many fine effects can be produced with the different embossing borders shown on Plates 54 and 55, by embossing and printing them at one impression in a tint on delicately tinted paper or cardboard. The Barytes powder can be obtained of any dealer in painters' dry colors.

It will be noticed that the embossed work does not stand in very high relief. This is due to the fact that the sheets were subjected to great pressure during the process of binding the work, which, of course, somewhat flattened them out. This method of embossing is not suitable for heavy or hard bristol board. Any smooth stock that is somewhat soft and at the same time tough, is best for the purpose.





NO1280 :E37

Earhart, John Frank/The color



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